



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION ON VARIOUS PORTIONS OF THE FARMS GNOOLOOMA 416, MELTON 420, DIEPWATER 361, LA ROCHELLE 359 AND PLUMSTEAD 418, NORTHERN CAPE PROVINCE

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

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1. IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3) (b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable, or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

PREFACE

This Basic Assessment Report has been compiled by uKhozi Environmentalists, based on the guidelines provided by the National Environmental Management Act, 1998 (Act no 107 of 1998), Environmental Impact Assessment Regulations, 2014. Full acknowledgement is made for use of the NEMA EIA 2014 regulations guideline in compiling this report. This document includes uKhozi's own interpretation of the requirements of the National Environmental Management Act (Act 107 of 1998), the regulations, the guidelines and the integration with other statutory and best practice criteria. This report is the first step in the process of applying for environmental authorisation for the proposed prospecting operation by Menar Capital (Pty) Ltd.

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DISCLAIMER

uKhozi Environmentalists (Pty) Ltd was appointed by Menar Capital (Pty) Ltd to facilitate the Prospecting Right and Environmental Authorisation application process. This report has been compiled to comply with the specific requirements of the National Environmental Management Act (No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations (2014). The management measures presented in this report was based on the project description and site plans provided by the Applicant. uKhozi accepts no liability for any incorrect data and/or information supplied by the Applicant on which any of the EMPr has been based.

The mitigation and management measures presented in this report are made for the benefit of those responsible for the implementation and monitoring of the prospecting operation. Menar Capital (Pty) Ltd is fully responsible for the correct implementation of the EMPr. uKhozi accepts no liability resulting from misinterpretation and/or mismanagement of the operation made in conjunction with this EMPr. The EMPr by nature is a dynamic document and the NEMA provides for continual updating of the EMPr, with approval from the Competent Authority.

PART A:

Basic Assessment Report

Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process—

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives,
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided or mitigated;
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

Executive Summary

Menar Capital (Pty) Ltd (Menar), is a private investment company with an actively managed and growing portfolio of mining assets with current operations in Mpumalanga, KwaZulu Natal and Gauteng. Menar submitted a Prospecting Right Application to the Department of Mineral Resources and Energy (DMRE) to prospect for iron ore and manganese on various Portions of the Farms Gnoolooma 416, Melton 420, Diepwater 361, La Rochelle 359 and Plumstead 418, located 41km North West of Kathu within the Tsantsabane and Joe Morolong Local Municipalities, of the Northern Cape Province.

The proposed prospecting activities will aim to establish the extent and the quality of the iron and manganese ore body through non-invasive (desktop study) and invasive (core drilling) methods.

Non-invasive prospecting activities will consist of:

- Desktop studies
- Spatial Database Compilation
- Land Survey
- Remote sensing
- Geophysical survey

Data will be extracted and plotted into geological maps identifying areas for invasive prospecting resource determination.

Invasive prospecting activities will consist of:

- Establishment of drill site and temporary contractors' yard
- Core drilling.
- Rehabilitation of boreholes
- Drill rig, machinery, and vehicle movement.
- Water Management.
- Ablution Facilities.
- Domestic Waste Management
- Storage and Handling of Dangerous goods

Following the invasive prospecting activities and laboratory analysis, data will be assessed in a pre-feasibility study to determine mining potential.

Menar appointed uKhozi Environmentalists (Pty) Ltd (uKhozi) as independent environmental consultants to conduct the Prospecting Right and associated Environmental Authorisation Application for the proposed project. The names, contact details, qualifications and professional affiliations of the Environmental Assessment Practitioners that form part of the project team are presented below.

Name	Role	Qualifications	Professional Affiliations	Years Experience	Contact details
Thomas Olivier	Project Manager	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis	EAPASA Registered EAP (Number: 2020/1162)	10	Email: tommy@ukhozi-enviri.co.za Tel: 082 521 8870
Inus de Wit	Alternate project manager	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis Master of Science (MSc) Degree in Water Management	EAPASA Registered EAP (Number: 2019/417)	8	Email: inus@ukhozi-enviro.co.za Tel: 082 451 1615

Legal context

The project requires a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002) and Environmental Authorisation (EA) for triggering activities that fall under the Listing Notices of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), as amended, from the Department of Mineral Resources and Energy (DMRE), Northern Cape Province. An integrated application for a Prospecting Right and associated Environmental Authorisation will be followed with the DMRE Northern Cape identified as the Competent Authority. A Basic Assessment Process is required, as stipulated in GNR326 EIA Regulation 19, in support of the application.

Alternatives

For this specific application, the application area was selected based on extensive research on the geology of the area. Furthermore, the proposed site was also available for prospecting (i.e., not held by another company).

No activity or technology alternatives are considered because drilling is still the most effective way and an industry norm to complete resource evaluation and the use of aerial geological mapping as an initial non-invasive technique to delimit areas for invasive drilling is seen as the most responsible method to reduce needless surface disturbance and reduce environmental impact footprint.

Therefor the alternatives will be assessed in terms of:

- Design or layout – The preliminary positions of the proposed prospecting boreholes have been sited, in-line with an economically acceptable grid (SAMREC), to give a representative sample for the project area. Alternatives positions may be considered to avoid disturbance of watercourses, SANBI Critical Biodiversity Areas ("CBA"), Ecological Support Areas ("ESA"), and any potential heritage resources, as well as their applicable buffers.
- No go Option.

Public Participation

The following steps have and will be undertaken as part of the public participation process:

- Identifying internal and external stakeholders during the development of an Interested and Affected Party (IAP) database.
- Written notice to key stakeholders (directly affected landowners, lawful occupiers, adjacent landowners, Winton Farmers Association, local authorities and relevant organs of state).
- Placement of an advertisement in the Kathu Gazette inviting the public to register IAPs and notifying them of the availability of the draft Basic Assessment Report (BAR) for public review.
- Placement of A1/A3 laminated posters in and around the application area and various public venues inviting the public to register as Interested and Affected Parties (IAPs) and notifying them of the availability of the Draft BAR for public review.
- A hard copy of the Draft BAR was placed at the Kathu Public Library for review to provide the opportunity for any individuals that does not possess other means to access and review the full report.
- The Draft BAR was emailed to all registered IAPs and commenting authorities for download and review.
- Organisation and facilitation of a public meeting where the draft BAR was presented and discussed.
- Preparation of the Report on Results of Consultation (RRC), for inclusion in the Final BAR.
- Respond to all comments and/or concerns submitted by stakeholders and include proof of correspondence in the RRC.
- Update the IAP Database and RRC during the 30-day commenting period.
- Notify the IAPs of the decision made by the Competent Authority regarding the EA and the appeals process via e-mail. Depending on the conditions of the EA a notice will also be placed in the local newspaper giving the IAPs the opportunity to lodge an appeal.

Baseline Environment

The baseline environment is summarised below per environmental aspect.

Aspect	Description
Geology	<p>The application area is generally underlain by the Kalahari Formation. At the base is a thick sequence of platform carbonates of the Campbell Rand Subgroup which in turn is overlain by the Abestos Hills and Koegas Subgroup banded iron formations. These are overlain by the Manganese Formation, a glacially derived sequence of sediments and the lavas of the Ongeluk Formation.</p> <p>Overlying the Ongeluk lavas is the 140m thick Hotazel Formation, composed of mainly banded iron formations and manganese lutites. The Mooidraai Formation limestones and dolomites conformably overlie the Hotazel Formation. These rocks are overlain by the shales, quartzites and conglomerates of the Mapedi Formation. The Permian Dwyka Group of the Karoo Supergroup unconformably overlies the Mapedi Formation, which in turn is overlain by the Tertiary Kalahari Group, which are mainly calcretes, sand and gravels.</p>
Topography	<p>Two land facets are present on the application area. Two land facets are present on the application area. Dunes occur as high-gradient hills in the west of the southern part, on the Farm Gnoolooma 416, while the remainder of the site</p>

Aspect	Description
	represent slightly undulating plains. Within the application area, there are areas which form natural depressions, which may encourage ponding during storm events.
Climate	The application area's climate is described as semi-arid with high daytime temperatures of up to 40°C during the summer months of November to February and sub-zero temperatures during the winter months of June to August. Excessive temperatures (i.e., above 45 °C) can occur in the months of December and January. These frequently correlate with an excessively dry humidity score. Droughts are common and may vary from mild to severe. During these periods dust storms sometimes occur, depending mainly on denudation of the surface.
Soils, Land Use and Capability	<p>Soils in this region usually show the following characteristics:</p> <ul style="list-style-type: none"> - Soils have minimal development, are usually shallow, on hard or weathering rock, with or without intermittent diverse soils. - Lime is generally present in part or most of the landscape. - Red and yellow well-drained sandy soil with high base status may occur. - Freely drained, structure less soils may occur. - Soils may have favourable physical properties. - Soils may also have restricted depth, excessive drainage, high erodibility and low natural fertility. <p>The agricultural theme sensitivity of the application area is indicated as medium according to the National Web-based Environmental Screening Tool. The current land-use of the application area is grazing by livestock and game. Neighbouring farms are also being used for livestock grazing and game farming, with mining further away from the site</p>
Terrestrial biodiversity	<p>The application area is located in the savanna biome and comprises elements of three vegetation types, according to SANBI (2018) and National Biodiversity Assessment (2018), namely Kathu Bushveld (Mapping Unit SVk12), Koranna-Langeberg Mountain (SVk15) and Olifantshoek Plains Thornveld (SVk 13).</p> <p>No terrestrial threatened ecosystems were recorded in the application area, but it contains Ecological Support Areas (ESA) and Other Natural Areas according to the Northern Cap CBA Map. The northern boundary of the Farm Plumstead 418 is located approximately 7km south east of Tswalu according to data obtained from the Register of Protected Areas Map Service.</p>
Fauna	The mammalian community found in and around the application area is likely to be of moderate diversity. Species that could be found within the application area include Aardvark, Cape Porcupine, Spring Hare, South African Ground Squirrel, Scrub hare, Vervet Monkey, Small-spotted Genet, Yellow Mongoose, Slender Mongoose, Black-Backed, Jackal, Steenbok, Duiker and Kudu.
Surface water and aquatic ecosystems	<p>The application area is situated in the Lower Vaal Water Management Area Quaternary Sub-catchment D41K of the Molopo Sub Water Management Area. The major river within quaternary catchment is the Ga-Mogara River which flows approximately 3.8 km to the east of the Northern Part of the application area. Two tributaries of the Ga-mogara river, the Dooiemansholte and GAA river, flows between 6 and 13km from the Southern Part of the application area.</p> <p>The Ga-Mogara River is an ephemeral river which forms a tributary to the Kuruman River. The Kuruman River flows west joining the Molopo River approximately 250 km from the confluence of the Ga-Mogara River and Kuruman River. The Molopo River drains in a southerly direction eventually joining the Orange River.</p>

Aspect	Description
	The entire Molopo catchment is classified as endoreic i.e., catchments with large areas which do not contribute to runoff as the watercourses drain to inland pans. During the rainy season depression wetlands form in and around the application area.
Groundwater	<p>The application area is situated in a very dry/water scarce area and the landowners are reliant on groundwater resources for their farming activities. Two distinct aquifers are present in the area: a shallow and a deep aquifer.</p> <p>Shallow Aquifer: A shallow unconfined to semi-unconfined aquifer is located at depths between 10 m and 50 m below the surface within material of the Kalahari formation.</p> <p>Deep Aquifer: A deep confined fractured aquifer is located within the Dwyka, Moidraai and Hotazel formations and is located at depths between 70 to 300 m below the surface.</p> <p>Based on the DWA Aquifer Classification map (Matoti et al 1999, recompiled 2012), the aquifers underlying the proposed application area are classified as a poor aquifer system. The yields in the deeper aquifer are generally considered low.</p>
Air quality	In the pre-prospecting environment, there are no major sources of air pollution. Fugitive dust emissions may occur as a result of vehicle entrainment of dust from local paved and unpaved roads, wind erosion from open areas and dust generated by agricultural activities.
Noise	The application area is situated in a rural environment, with typically low levels of noise, dominated by the natural sounds of rustling vegetation, wildlife, and man-influenced sounds such as livestock and farming activities (use of farming equipment).
Visual Aesthetics	The visual character of the landscape in and around the application area consists mainly of large private farms, agricultural practices, and mining activities. The visual quality of the area is enhanced by non-perennial rivers, pans and dunes.
Socio Economic	The application area is located within two district municipalities (DM) namely John Taolo Gaetsewe District Municipality (DM) and ZF Mgcawu DM and two local municipalities (LM) namely Joe Morolong LM and Tsantsabane LM. Mining and agriculture are the largest contributing factors in terms of the economy in the LMs.
Heritage resources	Based on the desktop assessment, heritage sites and resources ranging from low to high significance have been documented on the periphery of a 30-50 km radius from the study area. Stone Age sites were recorded in various locations to the north, northeast, and south of the application area, most notably in open-air settings or sediments near rivers or pans. Rock art, specifically engravings, may be present in open-air rocky outcrop sites, such as the hilly terrain on the farm Gnoolooma 416. Archaeological traces of historical features and artefacts attributed to the representation of the regional colonial farming history and colonial settlement can probably be found on all the farms. Graves and informal cemeteries can be expected anywhere in the landscape. Ancestral graves on the southwestern part of the RE of the Farm La Rochelle 359 and Gnoolooma 416 Portion 4 close to the current farmstead were pointed out by the landowners. The application area is predominantly underlain by Quaternary aged sediments of the Kalahari Group and the underlying Campbell Rand Subgroup (Ghaap Group, Transvaal Supergroup). The general low palaeontological sensitivity of the bedrocks and superficial sediments in the proposed development footprint indicates that the proposed development will have an overall LOW impact significance in terms of palaeontological heritage.

Impacts

No impacts are expected to exceed a significance level of medium post mitigation. The key negative impacts along with the proposed mitigation measures are summarised below:

Potential Impact	Aspects	Significance if not mitigated	Mitigation Measures	Significance if mitigated
Cracks and disruption to geological layers	Geology	Medium	Plan location of invasive prospecting sites properly to avoid geological features. Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources.	Medium
Compaction and contamination of soils	Soils	Medium	Remain in designated roads / routes / activity areas. Where not possible, routes must be properly planned to reduce disruption to soil as far as possible. Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection.	Low
Harm/disturbance to protected fauna and flora species	Fauna and Flora	Medium	Plan location of drill sites properly to avoid sensitive features such as water courses and rocky outcrops. Survey prospecting sites in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. Do not hinder, harm, or trap animals. Restrict vegetation clearance.	Very low
Disturbance to streams and wetlands if activity proceeds indiscriminately	Surface water and aquatic ecosystems	Medium	No prospecting activities can take place within 100m of streams and/or 500m of wetlands unless authorisation is obtained to do so. Plan drill sites properly to avoid watercourses.	Low
Potential contamination of surface water		Medium	Remove any spills as soon as it occurs along with the polluted soil and dispose	Low

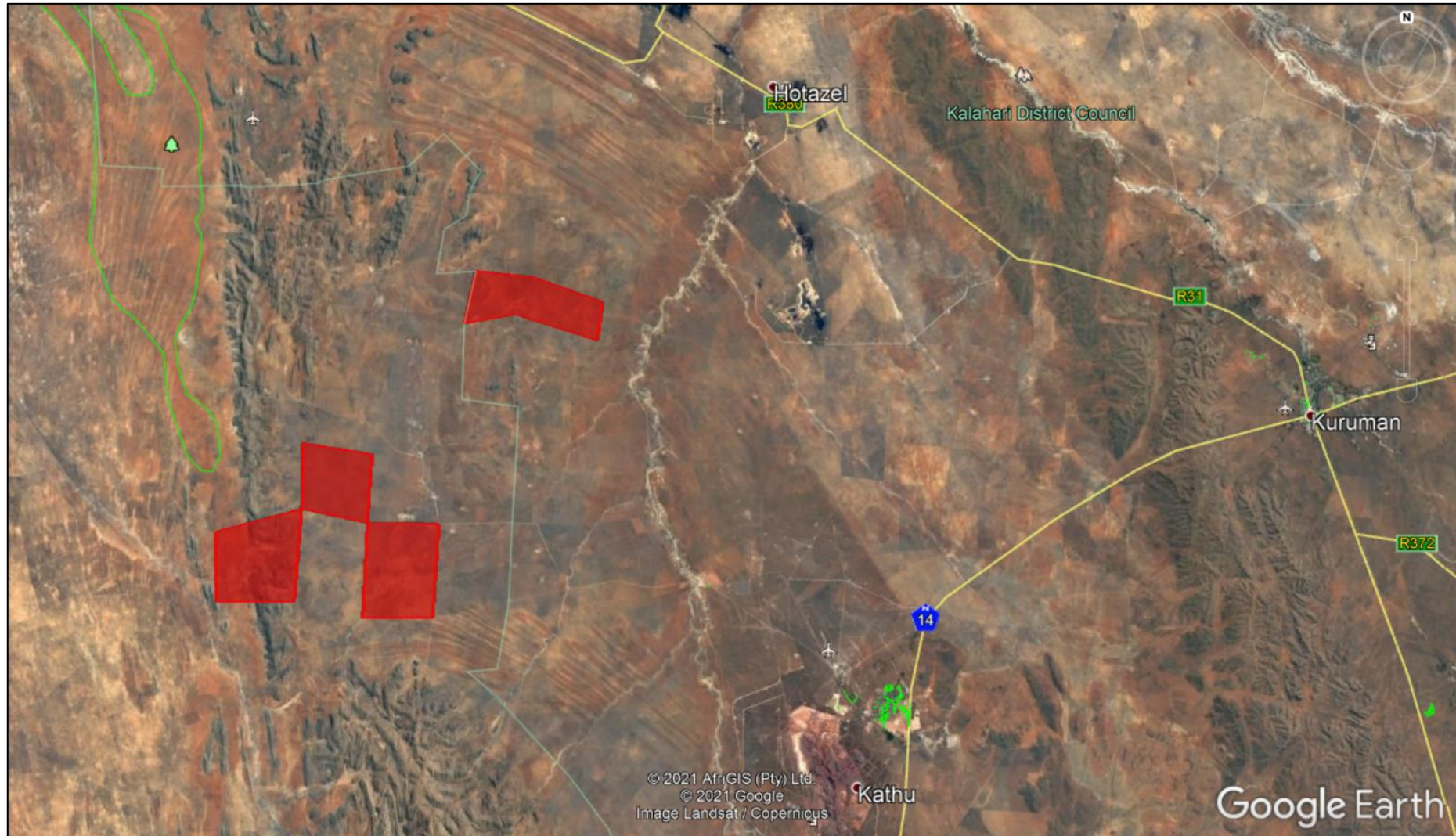
Potential Impact	Aspects	Significance if not mitigated	Mitigation Measures	Significance if mitigated
			<p>of it at a registered waste site.</p> <p>Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made.</p> <p>Use biodegradable lubricants and fluids/polymers.</p>	
Cracks and disruption to aquifers	Groundwater	Medium	<p>Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources.</p> <p>Limit development to target rocks and reduce exposure of aquifer rocks.</p>	Low
Potential contamination of groundwater	Groundwater	Medium	<p>Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site.</p> <p>Line sumps with the appropriate lining system.</p> <p>Isolate porous or highly transmissive groundwater zones through capping or grouting to prevent clean groundwater ingress or recharge of contaminated water.</p> <p>Equip vehicles on site with drip trays and place drip trays under leaky equipment.</p> <p>Spill kits must be available on site in the event of a spillage. Adhere to safe work procedure when refuelling vehicles and machinery.</p> <p>Hydrocarbons must be stored within portable bund tanks.</p> <p>Use percussion drilling to drill through the clay and just before the rift switch</p>	Low

Potential Impact	Aspects	Significance if not mitigated	Mitigation Measures	Significance if mitigated
			over to diamond drilling to avoid the use of chemicals.	
Emissions into the atmosphere through use of diesel-powered equipment, machinery, and vehicles	Air quality	Medium	Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment.	Low
Increase in dust fall out		Medium	Dust suppression procedures should be implemented to reduce and control dust on the drill site.	Low
Increase in ambient noise levels	Noise	Medium	Drilling must be done in consultation with the landowners to ensure that work schedules are communicated to them. Prospecting activities must be conducted during normal working hours (Monday – Friday - 7am – 17pm) Implement noise control measures on noisy equipment.	Low
Damage or destruction of any heritage resources.	Heritage	Medium	Establish a 50m buffer/safety zone around graves. Implement the Chance Find Protocol during the planning process to help establish the exact locations of the boreholes.	Low
Creation of employment opportunities	Socio Economic	Low	Appoint local contractors where possible.	Medium
Damage to existing infrastructure incl. gates, roads, and fences	Socio economic, health and safety	Medium	Remain in designated roads /routes. If infrastructure were damaged by the drill team the Applicant must repair the damages (i.e., grade farm roads that have been damaged due to use by prospecting team). The drilling team must always close the farm gates after entering.	Low
Localised dips in topography if boreholes collapse after material is replaced	Topography	Medium	Inspect and take immediate action to repair any dips by levelling and grading the disturbed area.	Low

Potential Impact	Aspects	Significance if not mitigated	Mitigation Measures	Significance if mitigated
Alien plant infestation	Flora	Medium	Remove alien and invasive species that may establish around prospecting sites. Clear all vehicles coming to site of any vegetative material.	Low

Conclusion and Recommendations

The assessment methods proved adequate to determine the nature and extent of all impacts that the proposed operation may have on the natural, social, and economic environments. Based on the findings of the impact assessment, which included a thorough public participation process, a comprehensive Environmental Management Programme (EMPr) has been developed to prevent, reduce, or contain the impacts of the proposed prospecting operation. There exist no highly significant impacts and or risks after mitigation therefor it is the consideration of the EAP that authorisation of the activity should be granted, with the understanding that legal commitment and strict adherence to the EMP are agreed to by the Applicant.



General Location of Application Area

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List of Abbreviations

BAR	Basic Assessment Report
BID	Background Information Document
CBA	Critical Biodiversity Area
CSAMT	Controlled Source Audio Magnetotellurics
DEA	Department of Environmental Affairs
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water And Sanitation
EA	Environmental Authorisation
EAPASA	Environmental Assessment Practitioners Association of South Africa
EAP	Environmental Assessment Practitioner
EIA	Early Iron Age
EMPR	Environmental Management Programme Report
ESA	Earlier Stone Age (ESA),
ESA	Ecological Support Areas
GDP	Gross Domestic Product
GNR	Government Notice
HA	Hectare
IA	Iron Age
IAP	Interested and Affected Party
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IWULA	Integrated Water Use License Application
IWWMP	Integrated Water And Waste Management Plan
KPI	Key Performance Indicator
LIA	Later Iron Age
LSA	Later Stone Age
LM	Local Municipality
MAMSL	Meter Above Mean Sea Level
MBGL	Meter Below Ground Level
MHSA	Mine Health and Safety Act, Act 29 of 1996
MIA	Middle Iron Age

MSA	Middle Stone Age
MPRDA	Minerals And Petroleum Resources Development Act, 1998 (Act No. 28 Of 2002)
MT	Million Tons
NEMA	National Environmental Management Act, 1998 (Act No. 107 Of 1998)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 Of 2004)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, Act (NHRA), 1999 (Act No. 25 of 1999)
NEM: PAA	National Environmental Management: Protected Areas Act (Act No. 57 of 2003)
NWA	National Water Act, 1998 (Act No. 36 Of 1998)
PPP	Public Participation Processes
PWP	Prospecting Work Program
PCLU	Post closure land use
RC	Reverse Cycle
RE	Remaining Extent
RRC	Report On The Results Of Consultation
SAHRA	South African Heritage Resource Agency
SANBI	South African National Biodiversity Institute
SAMREC	South African Mineral Resource Committee
SAPAD	South African Protected Areas Database
SLP	Social and Labour Plan
SMME	Small, Medium And Micro-Sized Enterprises
SP	Significant Points
WMA	Water Management Area
WUL	Water Use License
WULA	Water Use License Application

1 Project Background

Menar Capital (Pty) Ltd (Menar), is a private investment company with an actively managed and growing portfolio of mining assets with current operations in Mpumalanga, KwaZulu Natal and Gauteng. Menar submitted a Prospecting Right Application to the Department of Mineral Resources and Energy (DMRE) to prospect for iron ore and manganese on various Portions of the farms Gnoolooma 416, Melton 420, Diepwater 361, La Rochelle 359 and Plumstead 418, located in the Northern Cape Province. The application has since been accepted by the DMRE, and Menar has been instructed to proceed with the public participation and relevant environmental process.

The project requires a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002) and Environmental Authorisation (EA) for triggering activities that fall under the Listing Notices of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), as amended, from the Department of Mineral Resources and Energy (DMRE), Northern Cape Province. An integrated application for a Prospecting Right and associated Environmental Authorisation will be followed with the DMRE Northern Cape identified as the Competent Authority. A Basic Assessment Process is required, as stipulated in GNR326 EIA Regulation 19, in support of the application.

Menar appointed uKhozi Environmentalists (Pty) Ltd (uKhozi) as independent environmental consultants to conduct the Prospecting Right and associated Environmental Authorisation Application for the proposed project. The DMRE is responsible to assess the information provided and in writing:

- (a) grant environmental authorisation in respect of all or part of the activity applied for; or
- (b) refuse environmental authorisation.

2 Purpose and Scope of the Impact Assessment Process

Environmental impact assessment is used to assess the potential implications, combining environmental, social, and economic considerations, of a project before the project commences. The main objectives of Environmental Impact Assessments are to:

- Understand the consequences or impacts (effects) of the proposed development (causes) on the environment.
- Identify ways in which the impacts of the development can be improved. These could include ways to minimize negative impacts and ways to enhance its benefits.
- Provide this information to IAPs and decision-makers.

Ultimately, the aim of an environmental assessment is to prevent significant damage to the environment. The impact assessment will focus on the aspects of the proposed prospecting operation and their impacts on the natural and societal environment. The findings of the impact assessment guide the plan/development, implementation, and monitoring/evaluation of an Environmental Management Plan which will attempt to maximise human benefit and to minimise environmental degradation resulting from the proposed project.

2.1 Basic Assessment Process

The Basic Assessment Process is carried out in accordance with Regulation 19 of the EIA Regulations, 2014.

According to the regulated timeframes, once the application has been accepted by the Competent Authority the Final Basic Assessment Report (BAR) and Environmental Management Program (EMPr) must be submitted within 90 calendar days which must have been subjected to a public participation process of at least 30 days. The competent authority must within 107 calendar days of receipt of the Final Basic Assessment and EMPr grant or refuse environmental authorisation.

uKhozi was granted extension by the DMRE until the 23/08/2021 to submit the Final BAR. Refer to Appendix 7 for copies of the extension requests and approval letters from the DMRE.

The BAR and EMPr reports content will align with Appendix 1 and Appendix 4 of the EIA Regulations.



Figure 1: NEMA BAR process as contemplated in the EIA Regulations, 2014 (as amended)

3 Contact Person and correspondence address

Menar appointed uKhozi Environmentalists (Pty) Ltd (uKhozi) as independent environmental consultants to facilitate the Integrated Environmental Application Process for the proposed project.

3.1 Details of the Environmental Assessment Practitioner (EAP)

The names and contact details of the Environmental Assessment Practitioners that formed part of the project team are provided in the Table below.

Table 1: Contact details of EAP

Name	Role	Telephone	Fax	Email
Thomas Olivier	Project Manager	082 521 8870	087 767 8072	tommy@ukhozi-enviro.co.za
Inus de Wit	Alternate Project Manager	082 451 1615	087 767 8072	inus@ukhozi-enviro.co.za

3.1.1 Expertise of the EAP

The qualifications and professional affiliations of the project team is provided in the Table below.

Table 2: Qualifications and professional affiliations

Name	Qualifications	Professional Affiliations	Years Experience
Thomas Olivier	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis	EAPASA Registered EAP (Number: 2020/2020/1162)	11
Inus de Wit	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis Master of Science (MSc) Degree in Water Management	EAPASA Registered EAP (Number: 2019/417)	9

3.1.2 Summary of the EAP's past experience

Thomas Olivier has been working at uKhozi Environmentalists (Pty) Ltd from 2010. He has ten years' experience in conducting feasibility studies; Basic Assessments (BA's); Scoping and Environmental Impact Assessments (S & EIA's); Environmental Management Programmes (EMPr's), Water Use Licence applications (WULa's); Integrated Water and Waste Management Plans (IWWMP's); Waste Management Licences (WML); Closure Reports and Environmental Liability Quantum for mines, planning and executing Public Participation Processes (PPP); EMPr and WULa compliance auditing; compiling project proposals, training and awareness material; environmental and water monitoring and liaising with clients in both the private and public sectors.

Below please see a list of the EAPs involvement in similar projects (Refer to Appendix 1 for abbreviated CV and list of projects):

- Project Manager for the S22 Mining Right and Environmental Authorisation application for the Driefontein Mining Project situated on situated on Section of Portion 5 and 6 of the Farm Driefontein 398 JS and Portion 6 of the Farm Sterkstroom 400 JS in the Middelburg Magisterial District of the Mpumalanga Province (Ref No: MP10218MR). Applicant - Canyon Resources (Pty) Ltd.
- Project Manager for the S22 Mining Right and Environmental Authorisation application for the Phalannawa Extension Colliery situated on a Section of the Remaining Extent (R/E) and a Section of Portion 7 of the Farm Schoongezicht 225 IR, Delmas, Mpumalanga (Ref No: MP 10164 MR). Applicant – Miniandante (Pty) Ltd.
- Project Manager for the S22 Mining Right and Environmental Authorisation application for Schoongezicht Mining Project situated on Portion 10 and 11 of the Farm Schoongezicht 225 IR, Delmas, Mpumalanga (Ref No: MP 10114 EM). Applicant – Antobiz (Pty) Ltd
- Project Manager Full Scoping EIA Process for the refurbishment of the defunct Kwasa Colliery in the Piet Retief District (Ref No: 17/2/3 GS-222). Applicant - Siphwiwo Investments (Pty) Ltd.
- Project Manager for the S22 Mining Right and Environmental Authorisation application for the proposed coal mining operation on the farm Goedehoop 169 HT, situated in the Magisterial District of Piet Retief, Mpumalanga, DMRE Ref No: MP 10098 EM. Applicant – Jindal Mining SA (Pty) Ltd.

3.2 Full Particulars of Applicant

The Applicant's contact details as well as the relevant contact person are contained in Table 3 below.

Table 3: Applicant Contact Details

Item	Contact Details
Company Name	Menar Capital (Pty) Ltd
Responsible Person	M Pillay
Designation	Licensing and Compliance Manager
Tel no.	011 783 7996
E-mail Address	m.pillay@canyoncoal.com
Contact Person	G Fritz
Designation	Environmental Control Officer
E-mail Address	gf@sitatunga.com
Physical Address	Fredman Towers, 7 th Floor 13 Fredman Drive Sandown 2196
Postal Address	PO Box 2632 Saxonworld 2132

4 Project Location

The prospecting right application area is located 41km North West of Kathu, situated within the Tsantsabane and Joe Morolong Local Municipalities, located in the Kathu Magisterial district of the Northern Cape Province.

4.1 Description of the Property

The prospecting right application has been submitted to prospect for iron and manganese ore over various Portions of the farms Gnoolooma 416, Melton 420, Diepwater 361, La Rochelle 359 and Plumstead 418. The application area falls over privately owned land used for animal breeding and feeding. Refer to Table 4 below for the project location details.

Table 4: Project Location Details

Farm Name:	Remaining Extent (RE), Portion 1, 2, 3 and 4 of the Farm Gnoolooma 416. RE and Portion 1 of the Farm Melton 420. RE and Portion 1 of the Farm Diepwater 361. RE of the Farm La Rochelle 359; and RE and Portion 1 of the Farm Plumstead 418.
Application area (Ha)	18,472,27 Ha
Magisterial district:	Kathu
Distance and direction from nearest town	41km North West of Kathu
21-digit Surveyor General Code for each farm portion	C0410000000041600001 C0410000000041600002 C0410000000041600003 C0410000000041600004 C0410000000041600000 C0410000000042000001 C0410000000042000000 C0410000000036100001 C0410000000036100000 C0410000000035900000 C0410000000041800001 C0410000000041800000

4.2 Adjacent Land Tenure and Use

Neighbouring farms are being used for livestock grazing, game farming and hunting, with mining and nature reserves further away from the application area.

4.3 Surface Infrastructure and Servitudes

Most of the application area consists of natural land but the infrastructure found include gravel roads, fences, gates, houses, stores, power lines, and some informal dwellings.



Photo Plate 1: Typical gravel road found inside the application area



Photo Plate 2: Farmstead found inside the application area

4.4 Zoning

The application area is zoned for agriculture.

5 Locality map

Please refer to the locality map in Figure 2 below. The figure indicates the nearest urban area which is the town of Kathu as well as the municipal boundaries and roads in relation to the application area. The Regulation 2(2) plan developed in terms of the Minerals and Petroleum Resources Development Regulations is included in Figure 3 below. The plan indicates the prospecting right area in relation to the farm boundaries.

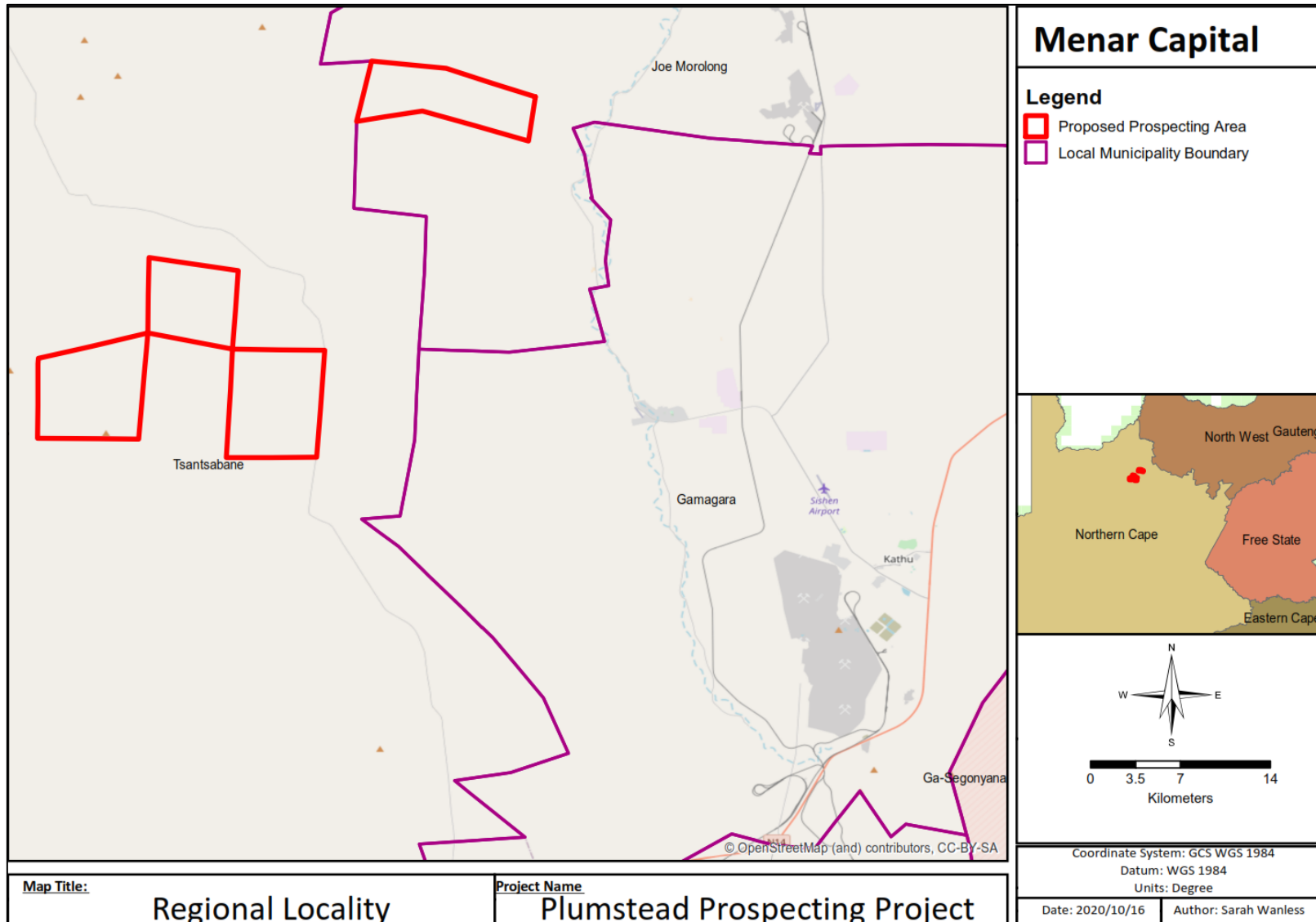


Figure 2: Locality Map

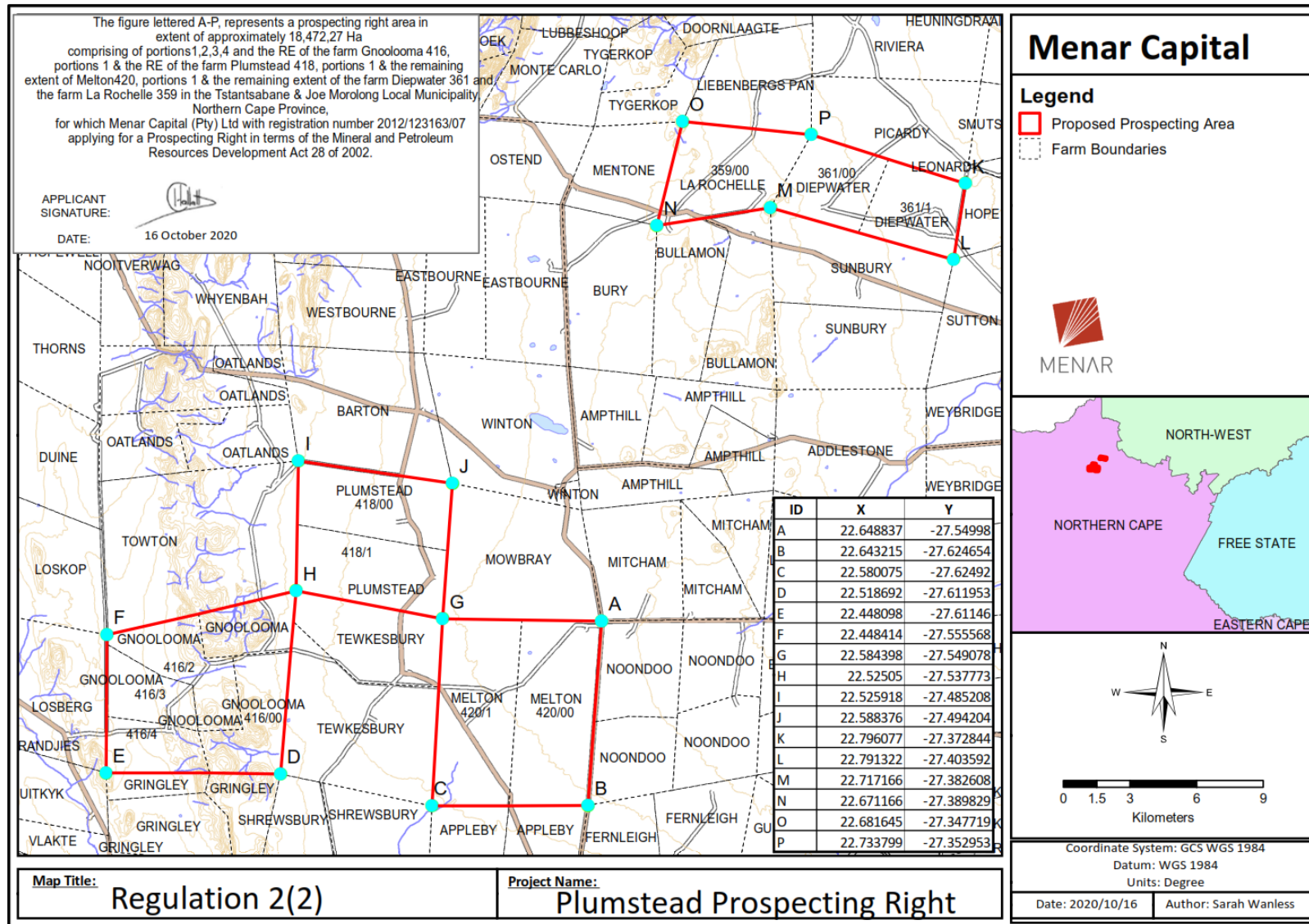


Figure 3: Regulation 2(2) Plan

6 Description of the scope of the proposed overall activity

The proposed prospecting activities will aim to establish the extent and the quality of the iron and manganese ore body through non-invasive (desktop study) and invasive (core drilling) methods. Core drilling will be targeted for areas identified through the non-invasive techniques described below for reserve determination and mine planning. A map indicating the location of holes on a grid of 500m intervals is provided in Figure 4 below. A maximum of 405 holes will be drilled with no more than 2 holes being actively drilled at any given time. The exact location and number of boreholes drilled will be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. The prospecting activities are expected to be undertaken over a period of 3 years with the potential for renewal depending on results and studies undertaken.

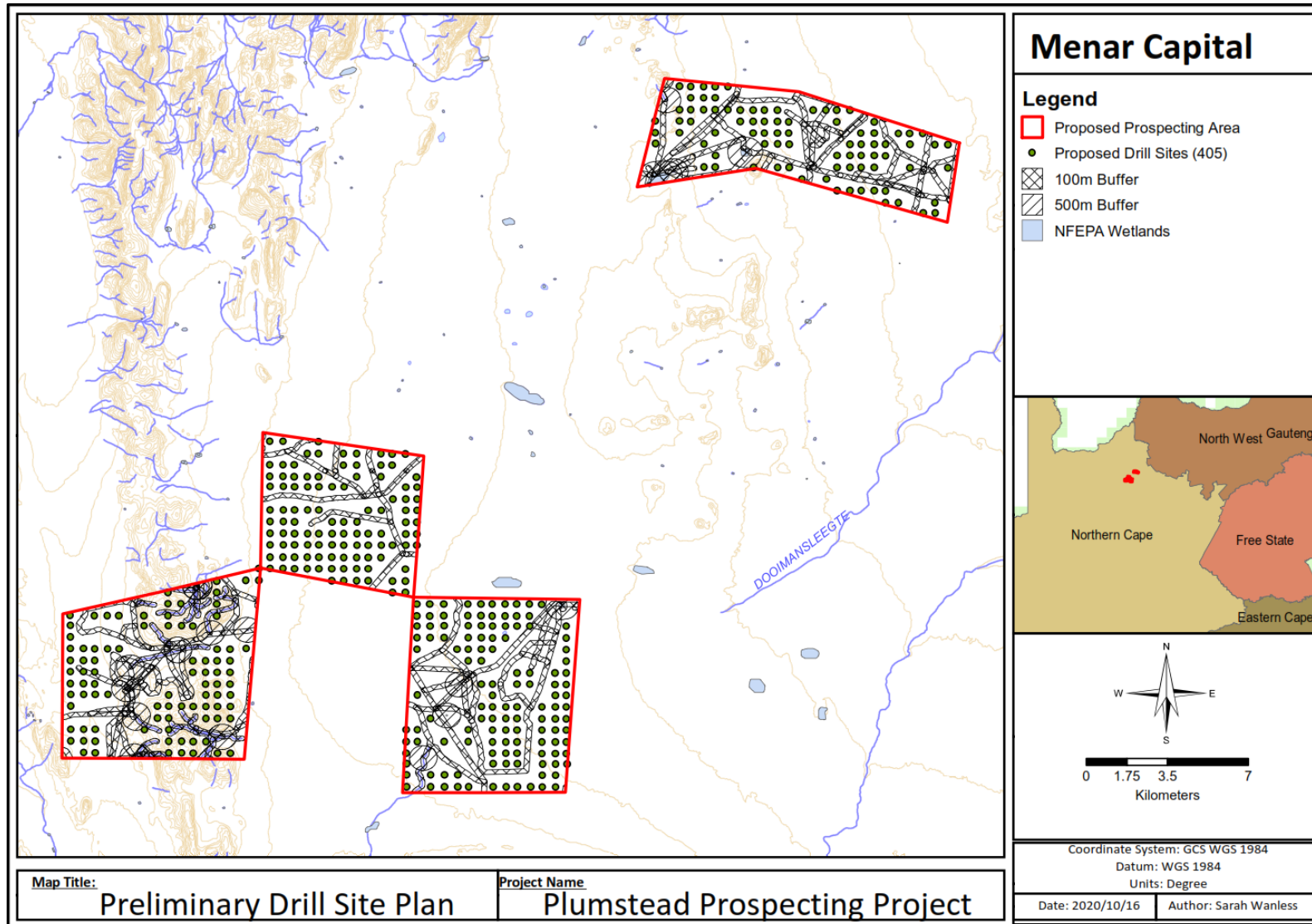


Figure 4: Preliminary drill site plan

6.1 Listed and specified activities

Please refer to the table below for the specific activities planned (listed or not):

Table 5: List of activities planned associated with the mining operation

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc. E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE (GNR 324, GNR 325 or GNR 327)/NOT LISTED
Prospecting and associated activities including drilling	20m ² per borehole. A maximum of 405 boreholes will be drilled.	X	GNR 327 (Listing Notice 1) Activity 20
Drill site establishment	A drill site and temporary contractors' yard of approximately 625m ² will be established that will require: <ul style="list-style-type: none"> - Clearing of vegetation for sumps and the drill entrance point - earth sumps for water recycling - laydown area for drill rods, fuel and ablution facilities (chemical toilets) - Site office - Parking area 	X	GNR 327 (Listing Notice 1) Activity 20
Establishment and rehabilitation of temporary access roads	TBC	X	GNR 327 (Listing Notice 1) Activity 20
Storage and handling of dangerous goods with a combined capacity of less than 30 m ³ i.e., Hydrocarbon storage (including diesel storage)	<30m ³	Not listed	N/A
Site rehabilitation activities	Less than 20 hectares	X	GNR 327 (Listing Notice 1) Activity 20

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc. E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE (GNR 324, GNR 325 or GNR 327)/NOT LISTED
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation	1-20 Ha	X	GNR 327 (Listing Notice 1) Activity 27
The clearance of an area of 300 square meters or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.	>300m²	X	GNR324 Listing Notice 3 Activity 12

6.2 Description of the activities to be undertaken

The proposed prospecting operation will be carried out in three phases. The activities proposed for each phase is described under the headings below.

6.2.1 Phase 1: Non-invasive prospecting

The proposed timeframe for non-invasive prospecting activities is expected to be 12 months. The proposed activities are described below.

Desktop Studies

The desktop studies will involve accessing all available public information on the geology, mineral occurrence and topography of the prospecting right application area, and all information on past work carried out in the area from geophysics, geochemistry, image interpretation, drilling, and mining. Any literature accessed will be reviewed, collated, and archived for reference.

Spatial Database Compilation

Spatial information will be compiled into a GIS database for access, correlation, and evaluation. The GIS system will be used and maintained for the period of the prospecting right exploration program and regularly updated as new information is generated by the exploration program.

Land Survey

All spatial information accessed and collected in the field will be standardized using the WGS84 datum.

Remote sensing

As part of the initial review, public domain aerial photos will be acquired, and a detailed geological and structural interpretation will be done on these to aid in identifying target areas that are not readily evident on the ground and to provide an independent interpretation of the geology of the area.

Satellite imagery will also be acquired to provide a more regional viewpoint of the area of interest. As before a detailed geological and structural interpretation will be done on these images to provide a more regional viewpoint on the target areas. Satellite imagery is used to complement the aerial photos interpretations as the combination of multi-spectral bands can be used to highlight certain lithology's, vegetation types, soil types, alteration minerals, etc.

Geophysical survey

Both airborne and ground geophysical surveys may be undertaken for the prospecting right area. This is dependent on the results of the desktop study. These surveys will be used in conjunction with the data available to the public from the Council for Geoscience. A small airborne magnetic/radiometric survey may be carried out over the prospect and surrounding areas to map the structural geology of the area. Follow up ground geophysical surveys will be carried out on coincident targets from the

compilation of geological and geophysical data. These surveys may include ground gravity, ground electromagnetics, IP, and controlled source audio magnetotellurics (CSAMT).

6.2.2 Phase 2: Invasive prospecting

The proposed timeframe associated with invasive prospecting can only be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. Invasive prospecting activities will consist of:

- Establishment of drill site and temporary contractors' yard (Refer to Figure 5 below for the proposed layout). This will involve:
 - Clearing of vegetation for sumps and the drill entrance point
 - Earth sumps for water recycling
 - Laydown area for drill rods, fuel, and ablution facilities (chemical toilets)
 - Site office
 - Parking area
- Core drilling. (the number of boreholes required can only be finalised once the non-invasive prospecting as detailed above is completed; however, preliminary positions have been proposed in Figure 4 above). Drilling methods will include diamond, reverse circulation or percussions drilling. A combination of HQ (63.5mm) and NQ (47.63mm) drilling will be used to drill targets. The borehole depths are expected to vary between 250m and 400m. The core will be logged, cut, and sampled. The samples will be crushed and milled and then analysed at an accredited laboratory to determine quality.
- Rehabilitation of boreholes. Casing will be removed from the borehole on completion thereof and the borehole sealed in accordance with "Standard Borehole Sealing Procedure" i.e.: each borehole certificated in terms of this procedure. Sealing will include:
 - Removing casing- if casing is to be removed, a specialist borehole contractor will advise on appropriate techniques and associated risks.
 - Backfilling- boreholes should be backfilled with clean uncontaminated material. Backfilled hole should be similar to surrounding strata.
 - Seal top of borehole- backfilled borehole should be compiled with an impermeable plug to prevent entry of potentially contaminated surface run-off or other liquids.
 - Record details- the depths and position of each layer of backfilling and sealing material.
- Drill rig, machinery, and vehicle movement. Existing farm roads and tracks will be utilised as far as possible however, where a road does not exist temporary access roads will be established to access a drill site after consultation with the landowner. The type of access envisaged is limited to removal of large rocks and disturbance of vegetation. Such access roads may also require 'light' grading to allow the movement of surface mobile vehicles.
- Water Management. Process and potable water will be obtained from existing lawful users or water services provider. Two sumps (delivery sump & settling sump) will be installed around the drilling rigs to collect water during the drilling process and settle out the suspended solids, for recycling of the water. This water

will be re-used on the rig. It is recommended that the sumps at the drill sites be plastic lined to limit the amount of seepage of process water.

- Ablution Facilities. Portable chemical toilets will be provided within close proximity of the drilling site and serviced on a regular basis by the service provider.
- Domestic Waste Management - The drilling team will be housed off site in the nearest town. No accommodation will be provided on site. Specific areas for lunch breaks will be provided and closed bin will be provided to collect domestic waste which will be removed and disposed of by the drilling contractor at a suitable site.
- Safety and Security - Security staff will be employed once equipment has been established on site.
- Storage and Handling of Dangerous goods - During the drilling activities there will be a storage area where limited amount of diesel and oil will be stored on site in above ground storage tanks. The tanks capacity will be less than 30m³. The storage area shall be securely fenced and all hazardous substances and stocks such as diesel, oils, detergents, etc., shall be stored therein. Drip pans, a thin concrete slab, or a facility with PVC lining, shall be installed in such storage areas with a view to prevent soil and water pollution.



Photo Plate 3: Example of drill rig

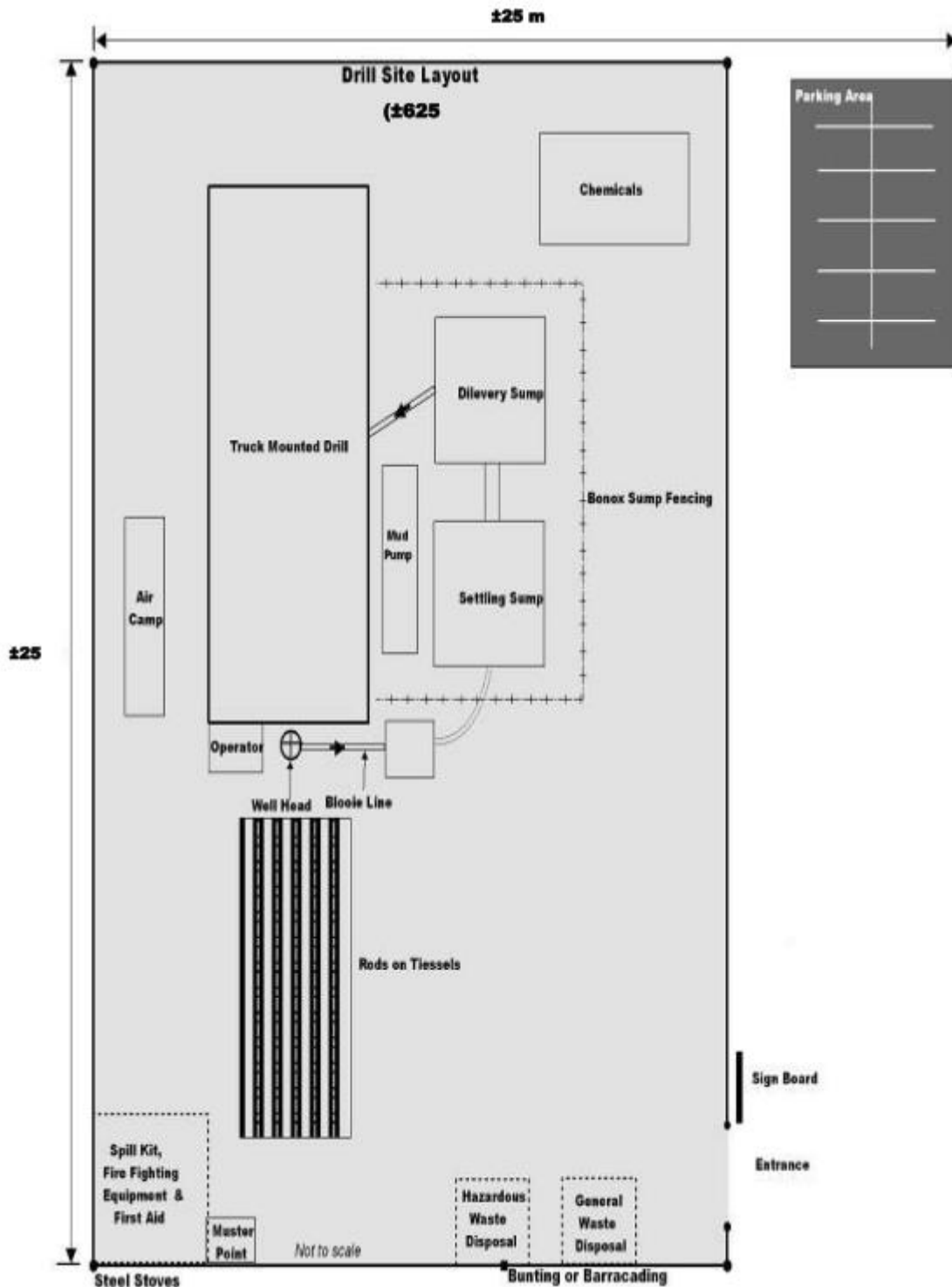


Figure 5: Proposed Drill Rig Layout

6.2.3 Phase 3: Analytical assessment of prospecting data

Data will be assessed in a pre-feasibility study to determine resource estimates to commence with prefeasibility and feasibility assessments for mine planning and Mining Right Application processes.

7 Policy and Legislative Context

This prospecting application is being sought by Menar as an initial application for exploration and any future mining activities over the listed farm portions for the extraction of iron and manganese. The prospecting right application is subject to the following Acts:

- Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA).
- National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the NEMA EIA Regulations of 2014, as amended.

The legislative summary below is specific for the proposed prospecting activities to which this application relates.

Table 6: Policies and Legislation

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
Constitution of South Africa Act 108 of 1996.	In terms of Section 24 of the Constitution of the Republic of South Africa (108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development, and use of natural resources while prompting justifiable economic and social development.	The needs of the environment, as well as affected parties, will be integrated into overall project management. The Applicant is committed to implementing the management/mitigation measures identified in the EMPr in order to avoid, reduce and/or minimise the significant environmental impacts.
MPRDA, 2002 (Act 28 of 2002) MPRDA, 2002 (Act 28 of 2002): MPRDA Regulations, 2004	Section 16 of the MPRDA and Regulation 5 of the MPRDA Regulations, GNR 527 (23 April 2004). In terms of the MPRDA a prospecting right is required and amongst others a Prospecting Work Program (PWP) must accompany the application.	A Section 16 Prospecting Right application was submitted to the Department of Mineral Resources and Energy (DMRE) along with the Prospecting Work Program (PWP). As an EMPr is a requirement for a Prospecting Right the DMRE does not process applications without being provided with the required environmental authorisation in terms of the NEMA. As such the granting of the Prospecting Right will depend on the issuance of the Environmental Authorisation.

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
		Part B: EMP of this report has included regulation requirements where relevant.
Mine Health and Safety Act, Act 29 of 1996 (MHSA) and associated Regulations	The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed operation. This cover, among other issues, noise, emergency preparedness, management of dust and handling, storage and transportation of hazardous materials.	The company will employ a Safety Health and Environmental (SHE) officer to ensure regulation is enforced during prospecting as well as adherence to Code of Practise (COP) and Safe Operating Procedures (SOPs). Where these procedures apply to prospecting contractors this will be communicated through induction training. Although not directly addressed in the EMP section of the report, protecting the environment contributes to a safe working environment.
NEMA, 1998 (Act 107 of 1998) NEMA EIA Regulations of 2014, as amended in April 2017 (GNR324, GNR325, GNR326 and GNR327).	In terms of Section 24(2) of the NEMA, the Minister of the Department of Environmental Affairs (DEA) may identify activities that may not commence without prior authorisation and make regulations in accordance with the procedures required for such authorisations. Activities identified were published in Government Notice Regulation (GNR) 324, 325 and 327 (7 April 2017), and the EIA Regulations outlining the procedures required for authorisation published in GNR 326 (7 April 2017). Section 28 – Duty of care and remediation of environmental damage	An application for Environmental Authorisation was submitted along with the Prospecting Right Application for the listed activities triggered by the proposed project. This BAR process is required as part of the Environmental Authorisation application for the listed activities identified in Table 5 above. The Applicant will be required to comply with the mitigation, management and monitoring measures recommended in the EMP (Part B of this document) in order to reduce or avoid the potential environmental impacts of the proposed operation.
National Environmental Management: Waste Act (No. 59 of 2009) GNR 921 (9 November 2013)	All organisations that wish to commence, undertake, or conduct a waste management activity must apply for a waste management license. In terms of Section 19 of the NEM: WA the DEA may publish a list of waste management activities which may not commence without	A Waste License is not applicable to this application because no mine residue deposits will be established. General waste management has been incorporated into Part B, the EMP report, which must be implemented by the Applicant.

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
	prior authorisation. Activities identified were published in GNR 921 (9 November 2013).	
National Water Act ,1998 (Act No.36 of 1998)	<p>The Act regulates the protection, use, development, conservation, management, and control of water resources in South Africa. In terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA), activities that involve certain, specified uses of water need to register and apply for an authorisation to do so. The Section 21 water uses are listed below:</p> <ul style="list-style-type: none"> • 21 (a) Taking water from a water resources; • 21 (b) Storing water; • 21 (c) Impeding or diverting the flow of water in a water course; • 21 (d) engaging in a stream flow reduction activity contemplated in section 36; • 21 (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1); • 21 (f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; • 21 (g) Disposing of waste or water containing waste in a manner that may detrimentally impact on a water resource. • 21 (h) disposing in any manner of water which contains waste from. or which has been heated in any industrial or power generation process; • 21 (i) Altering the bed/banks, course or characteristics of a water course; • 21 (j): Removing, discharging or disposing of water found underground if it is necessary for the 	<p>The water management plan has been incorporated into Part B, the EMP report.</p> <p>The Department of Water and Sanitation (DWS) will be consulted as part of this application, to determine if a Water Use License or a General Authorisation (GA) is required. It is expected that the need for a Water Use License or GA will only be finalised once the non-invasive prospecting study have been completed. If required, the application will follow the process outlined in the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals, March 2017 published by the Department of Water and Sanitation (DWS).</p> <p>The application area is situated within a River FEPA Upstream management area and contains scattered isolated depression wetlands (Refer to Figure 17 in Section 12 below).</p> <p>Invasive prospecting activities will avoid watercourses through the establishment of buffer zones around the regulated area of a watercourse in which no prospecting activities will be allowed without the necessary authorisations from DWS.</p>

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
	<p><i>efficient continuation of an activity or for the safety of people</i></p> <ul style="list-style-type: none"> • <i>21 (k) using water For recreational purposes.</i> 	
National Freshwater Ecosystem Priority Areas (NFEPA)	<p>The National Freshwater Ecosystem Priority Areas (NFEPA) project is a multi-partner project between the Council for Scientific & Industrial Research (CSIR), the Water Research Commission (WRC), the South African National Biodiversity Institute (SANBI), the Department of Environmental Affairs (DEA), the South African Institute of Aquatic Biodiversity (SAIAB) and South African National Parks (SANParks). The project responds to the reported degradation of freshwater ecosystem condition and associated biodiversity, both globally and in South Africa. It uses systematic conservation planning to provide strategic spatial priorities for conserving South Africa's freshwater biodiversity, within the context of equitable social and economic development.</p> <p>The project has three inter-related components:</p> <ul style="list-style-type: none"> • A technical component to identify a national network of freshwater conservation areas. • A national governance component to align DEA and DWA policies and approaches for conserving freshwater ecosystems; and <p>A sub-national governance and management component that conducts case studies to demonstrate how NFEPA outcomes can be implemented (CSIR 2010).</p>	
NEMA, 1998 (Act 107 of 1998) GNR 1147 of Nov 2015. Regulations pertaining to the Financial Provision	An applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and	The financial provision has been determined through a detailed itemisation of all activities and costs, calculated on

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
for the Rehabilitation, Closure and Post Closure for Prospecting, Exploration, Mining or Production Operations	remediation of the adverse environmental impacts of prospecting, exploration and mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources.	<p>the actual costs of implementation of the measures required for:</p> <ul style="list-style-type: none"> • Rehabilitation and remediation • Decommissioning and closure activities at the end of mining • Remediation and management of latent or residual environmental impacts. <p>Refer to the Closure Plan attached as Appendix 5.</p>
National Environmental Management: Air Quality Act (Act No. 39 of 2004) GNR 893 (22 November 2013)	<p>The NEM: AQA, has shifted the approach of air quality management from source-based control to receptor-based control. The main objectives of the Act are to:</p> <ul style="list-style-type: none"> • protect the environment by providing reasonable measures for— <ol style="list-style-type: none"> i. the protection and enhancement of the quality of air in the Republic; ii. the prevention of air pollution and ecological degradation; and iii. securing ecologically sustainable development while promoting justifiable economic and social development; and • generally, to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and wellbeing of people. <p>The Act makes provisions for the setting and formulation of National Ambient Air Quality Standards for “substances or mixtures of substances which present a threat to health, well-being or the environment”. More stringent</p>	<p>An Air Emissions License (AEL) is not applicable to the project. Dust suppression measures are incorporated in the EMPr to minimize fugitive dust release.</p>

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
	<p>standards can be established at the provincial and local levels.</p> <p>The NEM: AQA requires all persons undertaking listed activities in terms of Section 21 of the Act to obtain an AEL. The listed activities and associated minimum emission standards were issued by the DEA on 31 March 2010 (Government Gazette No. 33064 of 31 March 2010) and were last amended in 2020 (Government Gazette No. 43174 of 27 March 2020).</p>	
<p>Noise Control Regulations (GN R154 of 1992)</p> <p>SANS Guidelines: SANS 10103:2008, the Measurement and Rating of Environmental Noise with Respect to Annoyance, and to Speech Communication.</p>	<p>The NCRs were revised under Government Notice Number R. 55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations. Subsequently, in terms of Schedule 5 of the Constitution of South Africa of 1996 legislative responsibility for administering the noise control regulations was devolved to provincial and local authorities.</p> <p>The SANS 10103:2008 provides noise levels that are expected in various areas (Rating Level). These are used by the Noise Regulations as limits of noise in the various areas.</p>	<p>Noise levels will be maintained within baseline levels in the area or to the SANS standards.</p>
<p>National Environmental Management: Biodiversity (Act No.10 of 2004)</p> <p>National List of Threatened Ecosystems (2011)</p>	<p>The National Environmental Management: Biodiversity Act, 2004 (NEMBA; Act No. 10 of 2004) provides for a national list of ecosystems that are threatened and in need of protection, in one of four categories: 'Critically Endangered (CR)', 'Endangered (EN)', 'Vulnerable (VU)' or 'Protected'. Threatened ecosystems are listed in order to reduce the rate of ecosystem and species extinction by preventing further degradation and loss of structure, function and composition of threatened ecosystems.</p>	<p>According to the data sourced from SANBI, no terrestrial threatened ecosystems were recorded in the application area. The nearest terrestrial threatened ecosystem is the Mafikeng Bushveld ecosystem, which is situated approximately 150km to the east of the application area.</p> <p>The application area contains Ecological Support Areas (ECA) and Other Natural areas according to the Northern</p>

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
		Cape Critical Biodiversity Areas (CBA) Plan. Refer to Figure 13 in Section 12 below.
NEMBA Alien and Invasive Species Regulations (2014)	<p>The NEMBA Alien and Invasive Species Regulations (2014) aims to:</p> <ul style="list-style-type: none"> • Prevent the unauthorised introduction and spread of alien and invasive species to ecosystems and habitats where they do not naturally occur; • Manage and control alien and invasive species, to prevent or minimise harm to the environment and biodiversity; and • Eradicate alien and invasive species from ecosystems and habitats where they may harm such ecosystems or habitats. <p>The NEMBA Alien and Invasive Species Lists (2016) include national lists of invasive species to be read together with the Alien and Invasive Species Regulations (2014).</p>	The Applicant will implement alien invasive management with regards to preventing spread of alien invasive species over areas disturbed by prospecting activities.
Threatened or Protected Species Regulations (2015)	Chapter 4, Part 2 of NEMBA provides for listing of Threatened or Protected Species (TOPS). If a species is listed as threatened, it must be further classified as CR, EN or VU. In addition to these categories, Protected Species are defined as “any species which is of such high conservation value or national importance that it requires national protection”. Species listed in this category will include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).	Protected species will be preserved <i>in situ</i> and invasive prospecting will maintain 50m buffer from protected species, or the relevant permits will be applied for destruction or relocation of said species.
National Forests Act, Act 84 of 1998 & Provincial Northern Cape Nature Conservation Act, Act 9 of 2009	An updated list of protected tree species was published under section 12(1) (d) of the National Forests Act (Act No. 84 of 1998) on 6 December 2019. In terms of section 15(1) of this Act, no person may cut, disturb, damage or destroy	

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
	<p>any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a license or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.</p>	
<p>National Environmental Management: Protected Areas Act (Act No. 57 of 2003)</p>	<p>The National Environmental Management: Protected Areas Act (Act No. 57 of 2003) (NEMPAA) was promulgated in order to provide for (among other things) the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national Register of Protected Areas, and for the management of those areas in accordance with national norms and standards.</p>	<p>The Tswalu Kalahari Private Reserve (Tswalu) is a designated protected area in term of the NEMPAA. Tswalu is classified as a Nature Reserve and no prospecting activities can occur within the 5km buffer around the nature reserve without approval from the Minister of Environmental Affairs.</p>
<p>South African Protected Areas Database (SAPAD, 2020) and South Africa Conservation Areas Database (SACAD, 2020)</p>	<p>The primary function of protected areas is to ensure the conservation of habitats, environmental processes and species occurring within these ecosystems. The South African Protected Areas Database (SAPAD) and the South African Conservation Areas Database (SACAD) are Geographic Information System (GIS) inventories of all Protected and Conservation areas in South Africa. The Protected and Conservation Areas (PACA) database also includes data on privately owned protected areas. This Register comprises of all data required for the Register of Protected Areas (legally declared) as well as data on Conservation Areas (areas responsibly managed for biodiversity conservation but not legally declared as Protected Areas).</p>	<p>The southern part of the application area (Plumstead 418) is located approximately 7km south east of Tswalu according to data obtained from the Register of Protected Areas Map Service (Refer to Figure 14 in Section 12 below).</p>
<p>The National Protected Areas Expansion Strategy (NPAES; 2010)</p>		

Applicable Legislation and Guidelines	Reference where Applied	How does this Development Comply with and Respond to the Policy and Legislative Context
National Veld and Forest Fire Act, Act 101 of 1998	General management regarding the training, preparedness and control of fires.	The Applicant will implement firefighting management protocols as stipulated by the NVFFA.
National Heritage Resources Act, Act (NHRA), 1999 (Act No. 25 of 1999)	The NHRA is utilized as the basis for the identification, evaluation, and management of heritage resources and in the case of Cultural Resource Management (CRM) those resources specifically impacted on by development as stipulated in Section 38 of NHRA. Section 38(1) of the NHRA of 1999 requires the responsible heritage resources authority to notify the person who intends to undertake a development that fulfils the following criteria to submit an impact assessment report if there is reason to believe that heritage resources will be affected by the proposed development.	A Phase 1 Heritage Impact Assessment & Palaeontological Desktop Study was conducted by UBIQUE Heritage Consultants in accordance with Section 38 of the NHRA and the NEMA to fulfil the requirements of Menar Capital (Pty) Ltd's Prospecting Right Application in terms of the MPRDA, and in response to SAHRA's interim comments for CaseID: 16605. Refer to Section 12.2 for the findings of this assessment and Appendix 8 for a copy of the report.
Hazardous Substances Act (No. 15 of 1973)	The Hazardous Substances Act (No. 15 of 1973) provides for the control of substances that may cause injury, ill health, or death to human beings.	Hazardous substances in the form of diesel will be stored at the drill sites. The management of hazardous substances during all the phases of the project will be governed by the HAS.
Municipal Plans: Integrated Development Plan (IDP) and Strategic Development Framework	Tstantsabane and Joe Morolong IDP: <i>Promotion of a Local Economic Development should be furthered in order to promote manufacturing and other mining related sectors and investor interest in the region.</i>	As mentioned under Section 8 below the activity of prospecting creates the opportunity to develop mineral resources in South Africa which is in line with the Key Performance Area (KPA) of the Promoting Local Economic Development.

8 Need and desirability of the proposed activities

The activity of prospecting creates the opportunity to develop the mineral resources of South Africa as outlined in the national development frameworks and policies. The preferred location for the activity is in the Northern Cape which is rich in iron and manganese resources and provides major employment opportunities in the area. The application area is generally underlain by the Kalahari Formation and is located in the vicinity of a number of operating manganese operations and approximately 76km North West of Sishen. The Sishen Iron Ore Mine in the Postmansburg district produces 22 Mt of iron ore annually of which 67% is exported, while the rest is consumed within South Africa. The Kalahari manganese field is located some 65 km further to the north of Sishen. Manganese ore is produced from 5 operating mines. The entire manganese field is overlain by a sand cover, known as the Kalahari Formation. The Kalahari Manganese Field is a 400 km² basin containing some 80% of the world's economic manganese ore resources.

The prospecting activity has the potential to result in a Mining Right Application together with a Social & Labour Plan (SLP) which will contribute to Local Economic Development in the area in general. The implementation of the SLP will also benefit staff through training (skills development) and bursary programmes. The proposed project has the potential to contribute to local taxes as well as the (Gross Domestic Product) GDP. Eventually the mining of minerals will allow for continued supply to other industries who also contribute to local taxes and GDP.

Although prospecting is not seen as an activity that significantly and sustainably contributes to an area's economy, it is a precursor to possible mining activities. The activity of mining has numerous social and economic benefits in local, regional, and national context. These include:

1. Job creation
2. Skills development
3. SMME development
4. Local economic development
5. Contribution to local and national tax income (royalties, companies tax etc.)
6. Contribution to the national gross domestic product

The need to prospect is therefore a crucial step in being able to ascertain if it is feasible to investigate mining and in turn the benefits indicated in points 1-6.

9 Motivation for the overall preferred site, activities and technology alternative

9.1 Preferred site

The proposed application area was selected based on extensive research on the geology of the area. Furthermore, the proposed site was also available for prospecting (i.e., not held by another company).

9.2 Activities

No activity alternatives are considered. Drilling is still the most effective way and an industry norm to complete resource evaluation as required for the mine works programme to be submitted in support of a Mining Right Application.

9.3 Technology

The use of aerial geological mapping as an initial non-invasive technique to delimit areas for invasive drilling is seen as the most responsible method to reduce needless surface disturbance and reduce environmental impact footprint. Technological alternatives are therefore also not assessed further.

10 Description of the process followed to reach the proposed preferred site

The consideration of alternatives is an integral part of the impact assessment process. In terms of Regulation 50 (d) of the MPRDA Regulations R. 527 under the Mineral and Petroleum Resources Development Act, Act 28 of 2002, an environmental impact assessment report must include inter alia the following:

“(d) A comparative assessment of the identified land use and development alternatives and their potential environmental, social and cultural impacts.”

The goal of evaluating alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, or through reducing or avoiding potentially significant negative impacts. Constraints that must be considered when identifying alternatives for the proposed project include environmental, social, and financial issues which will be discussed below. Evaluation must focus on identifying the advantages and disadvantages of the identified alternatives and indicate which alternative is considered feasible in terms of technical, financial, and environmental aspects.

Alternatives considered for the proposed project are discussed under the headings below.

10.1 The property on which or location where it is proposed to undertake the activity

The property has been identified by the Applicant due to its geological significance and potential to produce a mineable iron and manganese reserve. Due to the nature and extent of the geology and mineral rights available in the area it is not possible to identify an alternative property as the geology is directly associated with the applied area. Numerous alternative drill sites, within the application area, are available and dependent on the site conditions. Refer to Section 10.3 below.

10.2 The type of activity to be undertaken

The activity to be undertaken is prospecting. Prospecting is an activity that is defined as a formalised process with a systematic approach to identify the presence of a mineral resource and include invasive (drilling) and non-invasive (desktop studies) activities. Alternative activities that can be undertaken include:

- Percussion drilling
- Reverse circulation drilling
- Diamond core drilling
- Bulk sampling (including scraping and trenching)

The activity to be undertaken is not decided by the EAP but defined by the geology of the area. Prospecting for this project will involve drilling (percussion, reverse cycle (RC) or core) depending on the type of rock and samples required. The standard approach is to

commence with percussion/ RC drilling as it is least costly to identify a possible target. No bulk sampling will be undertaken.

10.3 The design and layout of the activity

The preliminary positions of the proposed prospecting boreholes have been sited, in-line with an economically acceptable grid (SAMREC), to give a representative sample for the project area. Alternative positions may be considered to avoid disturbance of watercourses, SANBI Critical Biodiversity Areas ("CBA"), Ecological Support Areas ("ESA"), and any potential heritage resources, as well as their applicable buffers. In instances where boreholes will have to be situated inside these buffers, the requisite authorisations will be obtained from the relevant authorities.

Existing farm roads and tracks will be utilised as far as possible. The construction of new roads will be required where no existing roads are present. The type of access envisaged is limited to removal of large rocks and disturbance of vegetation. Such access roads may also require 'light' grading to allow the movement of surface mobile vehicles and will not trigger any listed activity in terms of NEMA. Should a site camp need to be erected it will be positioned near an existing road as it increases accessibility as well as reduce any environmental disturbance associated with the need to create new access roads. The site camp will consist of storage for drilling equipment and portable ablution facilities.

The final layout of the drilling can only be completed once the non-invasive aerial geological surveys are completed. Figure 4 gives a preliminary indication of where these may occur. It can be stated that invasive prospecting (drilling) will avoid watercourses, heritage resources (graves, historical or cultural infrastructure), and protected plant species through the establishment of buffer zones around these areas in which no activities will be allowed without the necessary authorisations, licenses and/or permits.

10.4 The technology to be used in the activity

The use of desktop studies and literature reviews are viewed as an initial non-invasive technique to delimit areas for invasive drilling prospecting and is seen as the most responsible method to reduce needless surface disturbance and reduce the environmental impact footprint. Technology alternatives are therefore also not assessed further.

10.5 The operational aspects of the activity

Drilling is still the most effective way as well as an industry norm to complete resource evaluation as required for the mine works programme to be submitted in support of a Mining Right Application. No further alternatives are relevant.

10.6 The option of not implementing the activity

Should the project not be implemented, the status quo remains, and farming activities will continue unaltered with no negative impacts on the biophysical, socio economic or cultural environment.

On the other hand, not proceeding with the proposed operation would have a direct consequence in that the mineable potential of the suspected reserve would not be determined. The secondary effect of that not happening is that the community and IAPs will have been negatively affected by this application for prospecting in that they would not have been informed (together with the prospecting Applicant) as to the future of exploiting any potential mineral reserve: this question will then not have been answered for either party and the community and IAPs will expect another round of public participation in the future when the next Applicant applies to prospect in the area. Should the government not declare the area off limits for mining and is protected, then the mining houses would continue to apply for rights over these properties. One possible mitigation mechanism is for the Applicant and the DMRE to be transparent with the community and IAPs in informing them of what the actual reasons are for the prospecting operation not proceedings.

11 Details of the Public Participation Process Followed

Public Participation is a legal requirement, where the potential exists for individuals and/or parties to be affected by a proposed activity. According to the principles of Integrated Environmental Management (IEM), these individuals and/or parties should be involved in the decision-making process from an early stage in the project, with regards to any relevant issues and concerns complementing the information on which the Regulating Authorities would base their decision. This facilitation of effective communication between the Authorities, the Public and the Applicant, forms the primary role of the Public Participation Process. Through the public participation process the Interested and Affected Parties (IAPs) are offered an opportunity to voice their opinions and concerns with regards to the application and have them formally recorded and registered as such to be considered by the Authorities in the decision-making process. The term "Public Participation" is defined by the International Association for Public Participation (IAP2) as *"any process that involves the public in problem-solving or decision-making and that uses public input to make better decisions"*.

This application is subject to legislation stipulated in the GN R326 of NEMA with regards to public participation, and the EIA Regulations of 2014 Regulation 41-44. These regulations stipulate the public participation process that must be conducted in order to provide the IAPs the opportunity to form part of the process. The focus of the public participation process is to involve the public in the decision-making process from an early stage in the project, with regards to any relevant issues and concerns complementing the information on which the Regulating Authorities would base their decision. Steps that have and will be taken throughout the BAR Process will include:

- Notification of the public in writing and through the press and site notices.
- Stakeholder meetings (one-on-one and focus group meetings with key stakeholders).
- Public meeting.
- Make information containing all relevant facts in respect of the application available to potential IAPs.
- Provide IAPs a reasonable opportunity to comment on the application.
- Open and maintain an IAP Register of issues and concerns.
- Provide the registered IAPs the opportunity to comment on all reports.
- Record all comments of IAPs in the reports and plans and ensure that written comments, including responses to such comments and records of meetings, are attached to the reports and plans that are submitted to the competent authority.

The information presented in this section was taken from the Report on the Results of Consultation (RRC) which is attached as Appendix 2 to this report. Reference is made to the following supporting information attached as Annexure A – G of the RRC:

- Annexure A: Notification documentation
- Annexure B: Written notification
- Annexure C: IAP Registrations, Written Responses and EAP Response
- Annexure D: Note for the Record of Meetings
- Annexure E: Proof of Availability of draft BAR
- Annexure F: Title Deeds
- Annexure G: Public Participation Plan

11.1 Stakeholder identification and IAP Registration

Stakeholders were identified using the Windeed System, existing databases generated during the previous applications in the surrounding area, and a site visit to the application area. The public was invited to register with the public participation office and will continue to be given an opportunity to participate in the process and express their points of view. Additional Interested and potentially Affected Parties (IAPs) has progressively been identified throughout the application process.

The IAP Register is presented in Table 7 below.

11.2 Notification

The steps that were taken to notify the public of the proposed project are detailed below.

11.2.1 Fixing a notice board on site

Site notices were placed at various points in and around the application area informing the public about the application and requesting the public to register as an IAP with the Public Participation Office in order to receive all future correspondence regarding this project. Refer to Appendix 2 – Annexure A.3 for the proof of placement of these notices.

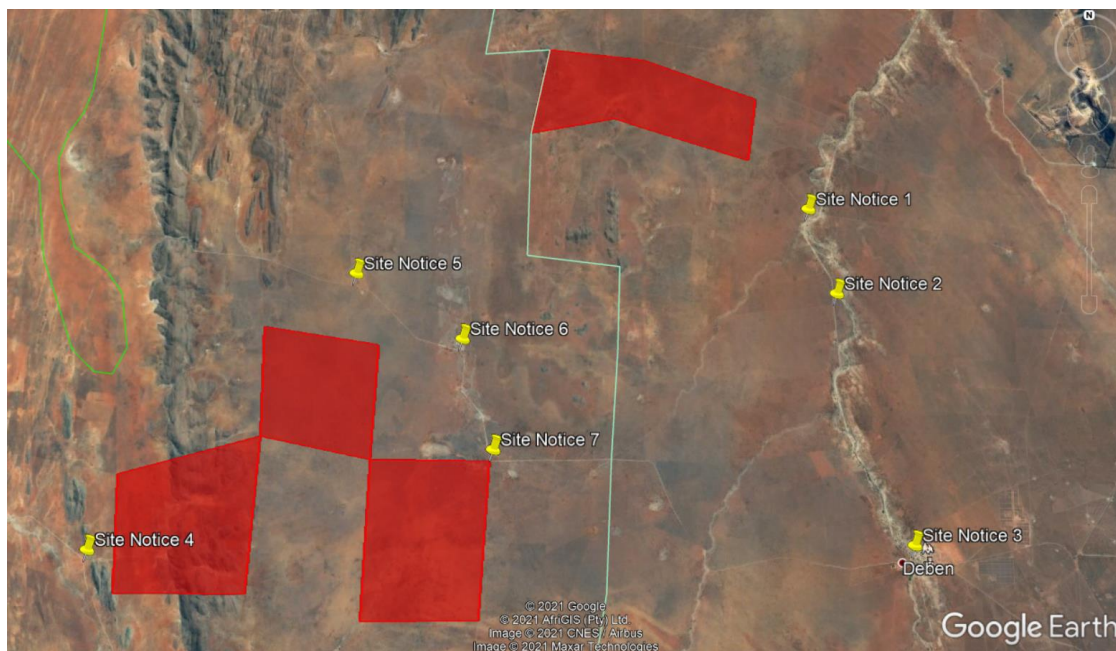


Figure 6: Location of site notices in relation to the application area

11.2.2 Written notice of the proposed project

The following people were informed through a written notification which included a notification letter and Background Information Document (BID):

- Landowners and lawful occupiers
- Adjacent landowners
- Winton & Rooiwal Farmers Association

- Local authorities
- Commenting Authorities and Relevant Organs of State

Please refer to Appendix 2 – Annexure A and B for a copy of the notification letter and BID and proof of notification, respectively.

11.2.3 Placing an advertisement

A press notice was placed in the local newspaper (Kathu Gazette) on the 21st of May 2021, notifying the public of the application. The notice also requested the public to register as an IAP with the Public Participation Office in order to receive all future correspondence regarding this project. The notice also informed the public that the draft BAR will be made available for comment from the 2nd of June 2021 to 3rd of July 2021. Refer to Appendix 2 – Annexure A.2 for proof of placement.

11.3 Meetings

uKhozi met with the following directly affected landowners during the site inspection:

- A Bergh - Melton 420 Remaining Extent (RE).
- J van der Walt - La Rochelle 359 RE from S Jordaan.
- K van Zyl - Plumstead 418 Portion 1.
- B Kampfer - Gnoolooma 416 Portion 3 And 4.

A public meeting was held on the 11th of August 2021 at the Winton Farmers Association Hall where the draft BAR was presented and discussed. Refer to the Note for the Record and Attendance register in Appendix 2 – Annexure D.

11.4 IAP Register

Refer to Table 7 below for the IAP register.

11.5 Access to information

11.5.1 Notification Letter and Background Information Document (BID)

A Notification Letter and Background Information Document (BID) was sent to the identified IAPs as well as the IAPs that registered to date. Refer to Appendix 2 - Annexure A.1 for a copy of the notification letter and BID.

11.5.2 Draft Reports

The draft BAR & EMPr was made available for comment from the 2nd of June 2021 to 18th of August 2021. Comments received from the authorities and IAPs during the commenting period has been incorporated and addressed in this final report. Refer to Appendix 2 – Annexure E for proof of availability.

11.5.3 Public meeting presentation

The presentation that was prepared for the public meeting was sent to all the registered IAPs and hard copies handed out at the meeting. Refer to Appendix 2 – Annexure D.4 for a copy of the presentation.

11.6 Summary of issues raised by IAPs

The over-riding objective during this consultative process has been to create an atmosphere conducive to sharing knowledge with the stakeholders to ensure that issues identified are used in a positive and constructive manner. All parties will be given the opportunity to raise their issues – be they fact or perception. The number and frequency with which issues are raised, and the extent to which they are debated gives a direct indication of the following:

- The success of the participative process.
- The perceived significance of the issues; and
- A measure of the sustainability of the outcome/solution.

All comments received, pertaining to this application, have been summarised in the Comments and Response Table below and provides the project teams response (Table 8). Please refer to Appendix 2 - Annexure C for copies of the written comments/concerns received and the responses provided and Annexure D for the NfR.

Table 7: IAP Register

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
Landowners					
Rand & Sent Plase Pty Ltd	Plumstead 418 Remaining Extent (RE)	Monta Terblanche	Cell: 0827818614	Po Box 127, Vryburg, 8600 farming@live.co.za	Email 2021/04/30
Van Der Vyver Irene Catherine	Gnoolooma 416 Remaining Extent (RE) And Portion 1				
Terblanche Minnie Mathilda	Melton 420 Portion 1				
Winton Familietrust	Plumstead 418 Portion 1	Koos van Zyl	Tell: 053 712 3544 Cell: 083 654 4687	koosvz@isat.co.za PO Box 78 Dibeng 8463	Email 2021/05/04
Markelo Investments Pty Ltd	Gnoolooma 416 Portion 2	Oosthuizen, Mark Anthony (Directors)	Tel: 0533114430 Cell: 082 784 7192	Po Box 739, Postmasburg, Northern Cape, 8420 marko@assmang.co.za	Email 2021/04/30
Kampfer Barend Petrus	Gnoolooma 416 Portion 3 And 4	Barend Petrus Kampfer	Cell: 0833818992 Tel: 0537910390	bpkampfer1@gmail.com	Email 2021/04/30
Melberg Plase Pty Ltd	Melton 420 Remaining Extent (RE)	Johannes Andries Willem Bergh	Tel: 0537391140 Cell: 0824934284	stephanie@oryxplant.com	Email 2021/04/30

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
Akacia Forrest Nature Reserve Pty Ltd	Diepwater 361 Remaining Extent (RE) and Portion 1	Frieda Schneider & Wilhelm Schneider (Directors)	Cell: 0735574432/079 324 0524	Po Box 215, Dibeng, 8463	Email 2021/05/11 Fax 2021/05/14
J.S Jordaan & Phillip Rudolf Markram	La Rochelle 359 Remaining Extent	Stefan Jordaan Phillip Rudolf Markram	Cell: 0824182353/ 073 228 9555	stefan.jordaan6@gmail.com rudolphmarkram@gmail.com	Email 2021/05/10
Adjacent landowners, other IAPs and Farmer Associations					
Agri Kuruman	Winton Farmers Association Kuruman and Kuruman Oos Farmers Association	Nico Smit (Chairman)	053-712 3544 or 072 254 5726	wintonbv@gmail.com nico.smit4@gmail.com	Email 2021/04/30
	Rooiwal Farmers Association	Chairman	082 564 2580	info@27south.co.za	Email 2021/05/21
	Agri Kuruman – Env. Comm.	Eben Anthonissen	073 163 4665	ebenanthonissen@hotmail.com	Registered 2021/05/31
Nico and Lynette Smit	(Farm Smuts) – Mobile Agric Skills Development and Training	Nico Smit	072 323 3060	Lynetteb@masdt.co.za	Registered 2021/05/18

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
Joseph vd Walt	Breëstraat 13 Kuruman 8460	JJ vd Walt	082 517 6104	dibaslaghuis@gmail.com	Registered 2021/05/18
Johannes Frederik Viljoen	Bishop's Wood 476 Portion 3	Johannes Frederik Viljoen	083 304 1144	fredviljoen56@gmail.com	Registered 2021/05/19
Hope Trust	Hope 362 RE	F van der Merwe		Flipvdmerwe8@yahoo.com PO Box 121 Dibeng 8463	Email 2021/05/04
Stols Familie Trust	Sunbury 397 RE	GJ Stols	Cell: 082 886 6629	stolsgawie@gmail.com PO Box 49 Dibeng 8463	Email 2021/05/04
SPANGENBERG JOHANNA CORNELIA PETRONELLA	Bullamon 398 Portion 3	P Spangenberg	083 557 2365	petrospangenberg@yahoo.com	Email 2021/05/04
VAN DER WALT MAGDALENA ALETTA	Bullamon 398 RE	M van der Walt	Cell: 073 161 4632	Mhvdwalt57@gmail.com PO Box 174 Kathu 8446	Email 2021/05/04
VILJOEN CAREL HENDRIK	Mentone 358 RE	CH Viljoen	Cell: 073 302 7819	marie@oleum.co.za PO Box 101 Dibeng 8463	Email 2021/05/04
PEET LOTRIET FAMILIE TRUST	Bury 400 RE	A Lotriet	Cell: 072 401 0319	anchenlotriet@yahoo.com PO Box 279 Olifantshoek	Email 2021/05/04

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
				8450	
KRUISPAD KRALE CC	Liebenbergspan 336 RE	Pieter Gideon Stans	Tel: 0537231216 Cell: 0834627411	PO Box 1121 Kathu 8446	Registered Post on 2021/05/07
J P MARKRAM PLASE PTY LTD	Sutton 394 RE	PR and SM Markram	Cell: 073 092 3767	rudolphmarkram@gmail.com	Email 2021/05/04
CENTWISE 160 CC	Gringley 497 Portion 2	Almari Lora & Leesean Meyer		PO Box 2534 Kuruman 8460	Registered Post on 2021/05/07
Barend Petrus Kampfer	Gringley 497 Portion 4	Barend Petrus Kampfer	Cell: 0833818992 Tel: 0537910390	bpkampfer1@gmail.com	Email 2021/04/30
NORTJE JAN JOHANNES & MINNIE TERBLANCHE	Tewkesbury 417 RE	Monta Terblanche	Cell: 0827818614	Po Box 127, Vryburg, 8600 farming@live.co.za	Email 2021/04/30
TERBLANCHE IGNATIUS SOLOMON	Tewkesbury 417 Portion 1	Monta Terblanche	Cell: 0827818614	Po Box 127, Vryburg, 8600 farming@live.co.za	Email 2021/04/30
OLIVIER ANNA JOHANNA	Mowbray 419 RE	Ansi Olivier	Cell: 083 255 6877	Ansi.olivier@gmail.com PO Box 63 Dibeng 8463	Email 2021/05/04

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
ZYL JACOBUS ADRIAAN VAN	Winton 402 RE	Koos van Zyl MD van Zyl	Tell: 053-712 3544 Cell: 083 654 4687/084 547 9706	koosvz@isat.co.za mechielvz@gmail.com PO Box 78 Dibeng 8463	Email 2021/05/04
BARTLANDS TRUST	Barton 403 RE	CH Williams	Cell: 083 317 9861	henryw@lantic.net Towtonbonsmara@gmail.com PO Box 79 Dibeng 8463	Email 2021/05/04
CH Williams	Oatlands 406 Portion 2	CH Williams			
WILLIAMS TRUST	Towton 415 RE	CS Williams	Cell: 073 446 0809	PO Box 79 Dibeng 8463	
	Loskop 414 RE	CS Williams			
LOSBERG BOERDERY TRUST	Losberg 413 RE	Leon Pelser	Cell: 0826522359	PO Box 630 Fochville 2515	Registered Post on 2021/05/07
KAMEELFONTEIN BELEGGINGS PTY LTD	Uitkyk 503 RE	Jacobus Stefanus Marais	Cell: 0832616858 Tel: 0543321663	PO Box 13741 Noordstad Free State 9302	Registered Post on 2021/05/07

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
JD Fourie	Wormald	JD Fourie	Cell: 082 446 1482	Akasia1@telkomsa.net	Attended public meeting 2021/08/11
GA van Dyk & LW van der Merwe	Tswalu Kalahari Reserve Pty Ltd	GA Van Dyk/ LW van der Merwe	Cell: 078 636 7889/083 289 4884	Lw.vandermerwe@tswalukalahari.com Gus.vandyk@tswalukalahari.com	Attended public meeting 2021/08/11
R Kernekamp	Kathu	R Kernekamp	Cell: 083 310 0355	kernekampr@gmail.com	Attended public meeting 2021/08/11
J Kalp	Oatlands	J Kalp	Cell: 078 388 0742	Jfikalp7@gmail.com	Attended public meeting 2021/08/11
PS Cloete	Winton Farmers Association	PS Cloete	Cell: 082 551 0735	Lymington58@gmail.com	Attended public meeting 2021/08/11
RD Spangenberg	Smithers	RD Spangenberg	Cell: 081 451 0790	Roelof.kbs@gmail.com	Attended public meeting 2021/08/11
W Vermeulen	Platkop	W Vermeulen	Cell: 078 575 1144	werner@wvermeulen.com	Attended public meeting 2021/08/11

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
M Botha	Conservation Strategy, Tactics and Insight	M Botha		mark@ecological.co.za	Unknown
Local Authorities					
John Taolo Gaetsewe District Municipality	John Taolo Gaetsewe District Municipal Office, 4 Federale Mynbou Street, Kuruman, 8460	The Manager	Tel: 053 712 8700 Fax: 053 712 2502	P O Box 1480, Kuruman, 8460 molusim@taologaetsewe.gov.za	Email and Registered Post 2021/04/30
ZF Mgcawu District Municipality	Cnr Hill And Le Roux Street, Upington	The Manager	Tel: 054 337 2800 Fax: 054 337 2888	Private Bag X 6039, Upington, 8800 admin@zfm-dm.gov.za	Email and Registered Post 2021/04/30
Tsantsabane Local Municipality	Ward 6	Ward Councillor – Mpho Mashila	Tel: 053 313 7300 Fax: 053 313 1602	PO Box 5, Postmasburg, 8420 Mphomashlia80@gmail.com	Email and Registered Post 2021/04/30
Joe Morolong Local Municipality	Ward Councillor (Ward 4)	Municipal Manager	Tel: 053 773 9300 Fax: 053 773 9350	Private Bag X117, Mothibistad, 8474	Registered Post on 2021/05/07
Commenting Authorities and relevant Organs of State					
Department of Water and Sanitation (DWS)	Regional Office – Lower Vaal Water Management Area	Northern Cape Kimberly Regional Office	Tel: 053 836 7600 Tel: 053 830 8800	Private Bag X6101 Kimberly 8300 FeniN2@dws.gov.za MokhoantleL@dws.gov.za	Email 2021/04/30

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
South African Heritage Resources Association (SARHA)	All development applications are processed via the SA online portal, the South African Heritage Resources Information System (SAHRIS).	N. Higgitt	Tel: 021 462 4502	Email: nhiggitt@sahra.org.za	2021/04/30
Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL)		Mr Mothibi Viljoen T Perkins Rre Tonyane	Tel: 053 807 7430 Fax: 053 831 3530	Private Bag x 6102 Kimberley 8300 Private Bag X5018 Kimberly 8300 LCSMIT@ruraldevelopment.gov.za aliditeme@ncpg.gov.za	Registered Post on 2021/05/07 Email and Registered Post 2021/04/30
	Directorate: Research and Technology Development & Environmental Policy, Planning and Coordination Environmental Research and Development	E. Swart & Samantha De la Fontaine	Tel.: 054 338 4800	Elsabe.dtec@gmail.com sdelafontaine@gmail.com	Registered Post on 2021/05/07
Northern Cape Department of Forestry,	Directorate: Forestry Management (Other Regions)	J. Mans	Cell 082 808 2737 / 060 973 1660 (w)	JMans@environment.gov.za 26 Olien Street, Louisvaleroad	Objection letter received

IAP Name	Property details/Capacity	Contact Person	Tel No/Cell No./Fax No.	Postal /	Notification Method and Date
				E-mail address	
Fisheries & Environment (DFFE)				UPINGTON, 8801	
Department Environment and Nature Conservation		Mr Denver van Heeden, Mrs. Doreen Werth	Tel: 053 807 7306 Fax: 053 832 7842 Cell: 083 625 6437/ 073 470 7026	Private Bag X6010 Kimberly 8300 dvaheeden@ncpg.gov.za dwerth@ncpg.gov.za	Email 2021/04/30
Traditional leaders					
Not applicable: There are no communities, with Traditional Leaders, in the immediate vicinity of the prospecting right application area.					
Communities					
No community was identified during the preliminary public participation process. The farm portions within the selected area are owned by individuals or businesses and are utilised for commercial agricultural purposes.					

Table 8: Comments and Responses

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant
AFFECTED PARTIES			
Landowner/s			
Mark Oosthuizen	2021/05/03	(1) All concerns will be discussed with the prospecting right owner when land use agreement is discussed and agreed before any entry will be allowed to the right owner to the farm. Other issues: - Roads. - Gates.	(1) Noted. Drilling sites, access routes and camp sites are to be finalised in conjunction with the landowner / user and an agreement reached before prospecting activities commence on site.
A Bergh	2021/05/19	(1) No drilling will be allowed over weekends and after normal working hours. (2) If water is found during prospecting the casing must be left in the borehole so the landowner can use it as an abstraction borehole in the future.	(1) Noted. Access agreements will be arranged before prospecting activities commence on site. (2) This can be included in the land use agreements which will be arranged between Menar and the landowner before prospecting activities commence on site.
J van der Walt	2021/05/19	(1) There is a grave site on the south western part of the RE of the Farm La Rochelle 359 which must not be disturbed by prospecting activities. (2) Damage to farm roads caused by the movement of the drill rig and other machinery. (3) There have been many prospecting applications in and around the application area and	(1) Noted. No drilling will take place inside the preclusion zones to be set around the identified heritage sites. (2) Drilling sites, access routes and camp sites are to be finalised in conjunction with the landowner / user and an agreement reached before prospecting activities commence on site. If infrastructure were damaged by the drill team the Applicant must repair the damages (i.e., grade farm roads that have been damaged due to use by prospecting team). (3) This BAR process is the first step as part of the prospecting right application process. Should the right be granted land use agreements will be arranged between Menar and the landowner before prospecting activities commence on site.

		many companies do not follow the correct processes.	
K van Zyl	2021/05/20	<p>(1) How does the Applicant decide on the specific farm portions to apply for because there have been prospecting activities in the past in the past and a viable resource was not found.</p> <p>(2) Potential injuries/loss of livestock and game caused by accidents, unrehabilitated drill sites and gates being left open.</p> <p>(3) Mining companies usually do not rehabilitate the areas properly.</p>	<p>(1) The Applicant uses the DMR SAMRAD System to select the properties based on the existing/available information on the geology of the area. Furthermore, the proposed site was also available for prospecting (i.e., not held by another company). Geophysical and geological work carried out in Phase 1 of the prospecting programme will determine the need for invasive prospecting activities.</p> <p>(2) The BAR/EMPr will outline mitigation/management measures to prevent this impact from occurring but it will be the responsibility of the drilling team/contractor to implement these measures. It is recommended that this issue is addressed in the land use agreements which will be arranged between Menar and the landowner before prospecting activities commence on site.</p> <p>(3) The draft BAR will contain a closure plan outlining how the drill sites must be rehabilitated.</p>
B Kampfer	2021/05/20	<p>(1) Prospecting activities must not take place in the 1200ha game camp.</p>	<p>(1) The specific locations of the prospecting boreholes will only be determined during Phase 1 of the prospecting programme. It is recommended that this issue is addressed in the land use agreements which will be arranged between Menar and the landowner before prospecting activities commence on site.</p>
	2021/08/03	<p>(1) We live in a semi-arid area; vegetation takes long to grow and will take long to recover when disturbed. How much sensitive grass and scrub species will be destroyed by drilling equipment? Fuel and oil spills from drill rigs will kill vegetation and contaminate the soil. The deep spores created by the vehicles will cause erosion resulting in topsoil being washed away.</p> <p>(2) The landowners are reliant on groundwater resources for their farming activities. The underground water yield is poor, most instances just enough for household use.</p>	<p>First, I would like to explain that the prospecting right has not been awarded to Menar Capital. The Final Basic Assessment Report & Environmental Management Plan (EMPr) will be submitted to the DMRE after the public meeting. The department will process the document and based on the information decide whether to grant the prospecting right. If awarded, the department will issue a list of conditions with the Environmental Authorisation which Menar Capital must comply with. Please see my response to the concerns raised (numbered according to your email):</p> <ol style="list-style-type: none"> 1. The existing roads will be utilised as far as possible. Where it is necessary to go off road, the prospecting routes will be surveyed to identify sensitive plant species which must be avoided. The exact location of the boreholes will be determined during Phase 1 of the prospecting operation in consultation with the landowner. Once the locations have been determined a route plan outlining how the drilling team will reach the sites will be drawn up. The machinery will be equipped with drip trays. Spill kits will also be available on site to clean any oil or diesel spills. Any tracks/erosion gullies formed by the drilling equipment will be remediated before the team move on to the next borehole. Refer to Appendix 6: Closure Plan for a detailed description regarding the rehabilitation of boreholes and access routes. 2. Water will be sourced from existing lawful users or a water service provider. No water will be sourced from abstraction boreholes without an agreement with the landowners. 3. As mentioned under Point 1 as soon as the location of the boreholes are confirmed a route plan will be drawn up outlining how the drill team will reach the sites. Where access tracks have been developed in cases where there are no roads, these will be rehabilitated and

		<p>Farmers buy water from pipeline to use for livestock watering.</p> <p>(3) Damage to infrastructure. The gates aren't big enough for the drill rigs and other machinery and the roads aren't suitable for heavy equipment/vehicles.</p> <p>(4) Safety and security. Concerned about farm attacks and stock theft. What influence will the prospecting employees have on the farm workers. After prospecting is done the farmer stays behind with the problems.</p> <p>(5) The farmers are conservation conscious and have grown the farming practices in the area which will be destroyed by prospecting (not even to talk about mining).</p>	<p>closed as part of normal closure actions (See Appendix 6: Closure Plan). An access agreement will be drawn up between the landowner and the drill team outlining what will happen if infrastructure is damaged during drilling. If infrastructure is damaged by the drill team, Menar Capital will be responsible to repair the damage.</p> <p>4. No employees will be allowed to remain on the property after working hours without the landowner's consent. The drilling contractor is responsible to control and monitor the whereabouts of all the employees during the day. The drilling contractor will introduce himself to the landowner before drilling commences and any incidence must be reported to him.</p> <p>5. This application focusses on the prospecting activities only and therefor the potential impacts of mining cannot be addressed at this stage. The proposed prospecting activities is not anticipated to result in a change in character of the site and due to the limited footprint of invasive prospecting activities the current land use (grazing by livestock and game) can continue concurrently. Should the prospecting right be granted than prospecting would be done under an approved EMPr (Part B) and Prospecting Work Programme to ensure minimum damage to the environment.</p>
<p>OSRF Attorneys on behalf of Mr B Kampfer</p>	<p>2021/06/02</p>	<p>Please provide us with the following information:</p> <p>(1) A copy of the prospecting right application submitted to the DMRE, and acceptance letters received indicating the applicable dates.</p> <p>(2) A copy of the draft BAR/EMPr'</p> <p>(3) Proof of notification to our clients</p> <p>(4) A copy of the Water Use License Application submitted to DWS.</p> <p>(2) Proof of rezoning application.</p>	<p>(1) Please find attached the Acknowledgement of Application for Environmental Authorisation and Acceptance of Application for a Prospecting Right from the Department of Mineral Resources and Energy (DMRE). Also attached please find the letter from the DMRE granting extension to the regulated timeframes indicating that the deadline for submission of the final BAR/EMPr is 28 July 2021.</p> <p>(2) Attached please find a copy of the draft BAR & EMPr for review. Please follow the link below to download Appendix 1 - 7 (these files could not be attached because it exceeds the maximum email size).</p> <p>https://filegooi.co.za/get2/ffa534a5b75128fd53383889f424ba59/Appendix+1+to+7.zip (please note the link can be downloaded for 14 days. If you want to download the Appendixes after the initial 14 days please contact me so I can resend the link to you).</p>

			<p>Please send us your comments in writing by the 3rd of July 2021. Comments received during the commenting period will be incorporated in the final report which will be submitted to the Competent Authority for processing.</p> <p>(3) Refer to the Appendix 2: Report on Results of Consultation (Annexure A & B) for copies of the Notification Letter and Background Information Document (BID) provided as well as proof of emails sent.</p> <p>(4) The exact location and number of boreholes drilled will be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. It is expected that the need for a Water Use License or GA will only be finalised once the non-invasive prospecting study have been completed. If required, the application will follow the process outlined in the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals, March 2017 published by the Department of Water and Sanitation (DWS).</p> <p>(2) A rezoning application has not been submitted because the proposed prospecting activities will not result in the change of land use.</p>
<p>M Terblanche</p>	<p>2021/05/25</p>	<ul style="list-style-type: none"> • Air quality: Vehicles driving on gravel roads, as well as drilling, will cause a lot of dust which will pollute air. • Archaeology: Potential disturbance of ancestral graves sites, old buildings and houses which have sentimental value. • Surface water: Surface water from drilling will cause erosion. • Groundwater: Drilling holes will affect existing boreholes which provide drinking water for the animals. • Ecology: Vegetation will be harmed in the process of mining. Grass, bushes, and trees are food for the animals. 	<p>This application focusses on the prospecting activities only and therefor the potential impacts of mining cannot be addressed at this stage. The potential impacts posed by the proposed prospecting operation, including the ones identified on your registration form, will be assessed in the BAR & EMPr and mitigation/management measures provided to prevent, reduce, or contain the impacts where they are unavoidable. We will advise on the release and availability of the draft BAR for public review, confirmed public review start and end dates.</p>

		<ul style="list-style-type: none"> • Land use and planning: The land is exclusively used and purposed for animal breeding and feeding. • Waste management: Oil and fuels spills on the ground will be harmful to vegetation. • Economy: This operation will be expensive due to limited water resources, high electricity costs and poor-quality roads. • Noise: High levels of noise are harmful to humans and animals, especially in breeding season. • Soil would be damaged by heavy vehicles operating in the application area. • Security: Unknown people operating in the area increase safety risk of farmers and workers. • Employment: People from other areas and ethnic groups are employed by mines. Local employees will feel threatened. • Visual: Mining sites are visually bad on the eye. Even when the site is rehabilitated, the environment is visually changed forever. • Quality of life: Disturbance, pollution, and security risks of unknown people moving in and out the area, decrease quality of life on the farm. • Property value: Property value will decrease, as no one wants to live close to a mine. 	
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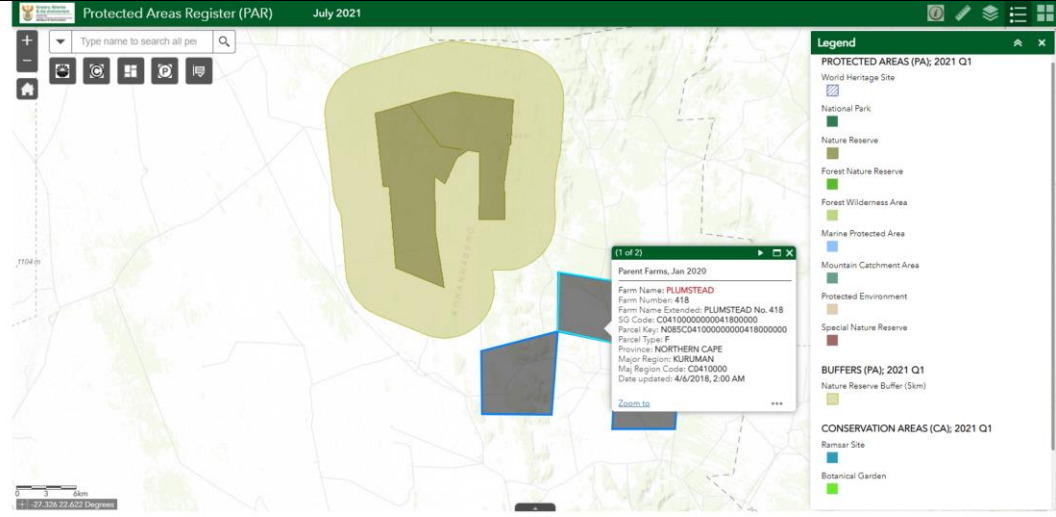
		<ul style="list-style-type: none"> Nuisance: Mining activities will disturb silence and peace experienced on a farm. 	
	2021/08/11	<ul style="list-style-type: none"> In the last 3 years, there has been a number of aeroplanes flying over the farms. Does Menar have access to this information in the form of a magnetic map of some sort that provided them with details regarding the mineral deposits on which Menar decided to lodge the application? 	Menar does not have access to such information at this stage. Information obtained by other Applicants is confidential and will not be provided to Menar. The available information will be sourced by the Applicant, after the prospecting right has been granted, during Phase 1 of the prospecting operation.
		<ul style="list-style-type: none"> Poor waste management. How can the landowners ensure that the drilling team will make use of the portable ablution facilities on site? 	The drilling contractor will meet with each landowner and sign an access agreement before drilling starts outlining specific commitments that must be met. The prospecting activities will also be audited by an Environmental Control Officer (ECO), which will assess compliance to the commitments made in the EMPr as well as the Environmental Authorisation conditions. The audit reports are submitted to the DMRE.
		<ul style="list-style-type: none"> How deep will the proposed boreholes be drilled because if a deeper borehole is drilled on the same aquifer as an existing abstraction borehole than that water will disappear? What will be done to prevent that? 	The planning phase (Phase 1) will involve further investigation by Menar's prospecting team to determine the specific locations of the boreholes considering the location of the existing abstraction boreholes. At this stage, they do not know the exact depth of the boreholes, but the PWP submitted stated that the depth will vary between 250 – 350m. The exact depth will be confirmed during Phase 1 of the operation.
Adjacent landowner/s, other IAPs & Farmers Associations			
Winton Farmers Association – Nico Smit	2021/08/11	What other projects are Menar Capital involved with in the Northern Cape and how did they decide on this application area.	Menar has one operation 5km north of Hotazel referred to as the East Manganese mine. The Applicant uses the Department of Mineral Resources and Energy (DMRE) SAMRAD System to select the properties based on the existing/available information on the geology of the area. Furthermore, the proposed site was also available for prospecting (i.e., not held by another company). The system will not allow the Applicant to apply for a prospecting right for the same mineral over a property on which a right has already been granted. The desktop studies carried out in Phase 1 of the prospecting programme will determine the need for invasive prospecting activities.
		Can different companies apply for different minerals over the same properties.	Different companies can apply for different minerals on the same properties but if the companies apply for the same mineral, the DMRE will notify you that there is an application ahead of you and follow the first come first serve principle (i.e., if there are two applications ahead of you than your application will only be processed after the other applications).

		Damage to access roads. Not only the drill rigs will use the road but also many trucks and pickups and nowhere has there been an investigation regarding the maintenance of the road network.	Prospecting will not involve a significant number of trucks and vehicles. Menar will not make use of more than 2 drill rigs and a maximum of two vehicles along with one water tanker per drill site.
		What mechanisms can be used to ensure that the prospecting operation complies with the commitments made?	The access agreement can be used to ensure that the contractor is aware of the commitments and consequences if these aren't met. A formal complaint can also be lodged with the DMRE but that the best way to ensure compliance is to maintain a communication channel with the drilling contractor and point out any non-compliances that must be rectified.
		There are numerous prospecting applications in the surrounding area and the cumulatively impacts of the activities, for example damage to the roads, will be significant	Concern noted.
		How is a borehole buffered? People use chemicals in this area to bind the red clay before drilling which can contaminate the groundwater resources.	The buffer refers to the area around the borehole and not the aquifer. Menar use percussion drilling to drill through the clay and just before they reach the rift will switch over to diamond drilling to avoid the use of chemicals.
	2021/08/18	<p>Water</p> <ul style="list-style-type: none"> - Water is a very scarce commodity in South Africa, but especially in the Kalahari. Water availability is of great concern as it would have to be transported to prospecting sites. - Pollution and contamination of water is also a concern and guarantees will be needed that the little water available will not be contaminated. - Casings must be used in all circumstances to avoid that the little amount of available water disappears into an aquifer. - In the case of a mining right to be awarded, where will sufficient water come from to continue with mining operations without sabotaging farming activities? 	<p>10 000 – 20 000 litres of water will be used per day for the drilling operation (2 rigs at a time). Water will also be brought onto site for potable use, this is estimated at 20 litres per crew/day. At this stage it can only be stated that water will be sourced off site from existing lawful water users or water service providers. The Applicant will recycle water from the sumps to re-use on the rig.</p> <p>Should the prospecting right be granted then prospecting would be done under an approved EMPr and Prospecting Work Programme to ensure minimum damage to the environment. Mitigation measures included in the BAR/EMPr to reduce the risk of groundwater contamination include:</p> <ul style="list-style-type: none"> - Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. - Use percussion drilling to drill through the clay and just before the ore bearing seam switch over to diamond drilling to avoid the use of chemicals. - Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. - Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made. - Line sumps with the appropriate lining system. - Isolate porous or highly transmissive groundwater zones through capping or grouting to prevent clean groundwater ingress or recharge of contaminated water.

		<p>- We suggest a scientific water study be done first and monitoring points monthly to stay ahead of any possible crisis for the area, the people and food security.</p>	<ul style="list-style-type: none"> - Equip vehicles on site with drip trays and place drip trays under leaky equipment. - Spill kits must be available on site in the event of a spillage. - Adhere to safe work procedure when refuelling vehicles and machinery. - Hydrocarbons must be stored within portable bund tanks. - Inspect, repair, and replace any damaged toilets. - Appoint the necessary reputable contractor to manage portable toilets. - Implement proper housekeeping and hygienic practices. <p>The casing of the boreholes will be discussed during the arrangement of the access agreements.</p> <p>The availability of water for mining purposes can only be addressed as part of the Mining Right and Water Use License application.</p> <p>The following has been included as a condition of authorisation: A baseline groundwater study/hydrocensus must be done during Phase 1 of the prospecting operation to establish the baseline groundwater conditions against which the potential impacts can be monitored.</p> <p>Mitigation measures included in the BAR/EMPr to reduce the risk of disrupting the aquifers are listed below:</p> <ul style="list-style-type: none"> - Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources. - Limit development to target rocks and reduce exposure of aquifer rocks. <p>In addition, there are drilling techniques other than diamond drilling available on the market. The Applicant will investigate whether such methods (i.e., air flush – does not use water for drilling) are feasible. If this is the case Menar would consider using a contractor who can do this type of drilling.</p>
		<p>Roads To access these prospecting areas, the prospectors will have to drive on very poorly maintained national roads, (mostly gravel roads). It is a constant struggle to get the municipalities to regularly grade these roads. These poor access roads will be under even more pressure if extra traffic and heavy vehicles (like water trucks and drills) use it every day. New or</p>	<p>Prospecting will not involve a significant number of trucks and vehicles. Menar will not make use of more than 2 drill rigs and a maximum of two vehicles along with one water tanker per drill site. The drill rig will not travel on the main roads other than mobilising on to the specific site. The water truck and LDVs will travel on the main roads, however it will be clearly communicated that these vehicles should not do any unnecessary traveling. Existing farm roads and tracks will be utilised as far as possible however, where a road does not exist temporary access roads will be established to access a drill site after consultation with the landowner.</p> <p>The type of access envisaged is limited to removal of large rocks and disturbance of vegetation. Such access roads may also require 'light' grading to allow the movement of surface mobile vehicles.</p>

		<p>existing roads should be built/reconstructed and maintained.</p>	<p>Drilling sites, access routes and camp sites are to be finalised in conjunction with the landowner / user and an agreement reached before prospecting activities commence on site. A plan to maintain the roads can form part of the access agreement. If infrastructure were damaged by the drill team the Applicant must repair the damages (i.e., grade farm roads that have been damaged due to use by prospecting team). Any access road or portions thereof, constructed by the Applicant and which will no longer be required by the landowner, shall be rehabilitated as described in the Closure Plan (Appendix 5). Finalization will only be agreed on with both project manager and landowner signatures agreeing that this has in fact been achieved. Rehabilitation of the area will start as soon as the drill team has finished on the site.</p>
		<p>Dust The prospecting and travelling will increase the dust pollution in this semi-desert "virgin" area immensely. This will need even more water or other bio-degradable suppression methods.</p>	<p>Refer to the response above under water addressing the water supply issues. The predominant activities in the surrounding area are agriculture and mining (situated further away from the application area), these activities coupled with an abundance of gravel roads in the area, can lead to elevated levels of dust. The proposed prospecting activities will contribute to the elevated dust and noise levels inside the application area with a significance rating of medium pre mitigation. The proposed mitigation/management measures can reduce the significance of the impact to low. Given the number of prospecting right applications in the area, it is likely that potential impacts from the operations will have a cumulative effect on the dust and noise pollution. However, the cumulative impacts of all the pending prospecting applications in addition to the proposed project could not be assessed in detail at this stage because no information regarding these other applications is available at the time of writing this report. The following mitigation measures are included in the BAR/EMPr:</p> <ul style="list-style-type: none"> - Dust suppression procedures should be implemented to reduce and control dust on the access road and drill site. - Control the speed of operational vehicles. - The drill rig must remain on site as far as possible.
		<p>Salvage Salvaging and storing of about anything causes a safety risk for example theft and fires which can affect lives and safety of people, livestock and the environment.</p>	<p>The following mitigation measures are included in the BAR/EMPr:</p> <ul style="list-style-type: none"> - Ensure farm gates are always closed. - No employee will be allowed to loiter around farms. - The drill contractor must monitor the whereabouts of the drill team. <p>Regular monitoring of all the environmental management measures and components shall be carried out by the holder of the prospecting right in order to ensure that the provisions of this EMPr are adhered to. Furthermore, an access agreement will be arranged with the directly affected landowners before invasive prospecting activities commence. During this arrangement, the drilling contractor's foreman will introduce himself to the landowner and establish a direct communication channel between the parties through which non-compliances can be reported and addressed.</p>

			The access agreement will also be used to ensure that the drilling contractor is aware of the EMPr commitments, access agreement and environmental authorisation conditions and the consequences if these aren't met.
		<p>Fire risk Movement and more human beings in the area increase the possibility of fires. Third party insurance against this hazard should be taken out by the prospector.</p>	<p>The drilling contractor will take-out third-party insurance and the Applicant will implement the following firefighting management measures stipulated in the EMPr:</p> <ul style="list-style-type: none"> - No employees will be allowed to make any open fires on the farms or adjacent land. - Cigarette butts may not be thrown in the veld but must be disposed of correctly. - Contractors must ensure that basic fire-fighting equipment and suitably qualified/experienced personal are always available on site. - Fire extinguishers shall be placed at working areas and all areas where hazardous substances are kept. - The drilling contractor must liaise with the local Fire Protection Agency (FPA) before drilling commences.
		<p>Safety and Security Apart from the above-mentioned points, our biggest concern is the security of these food producers and their worker's lives. An influx of people must be clinically controlled and monitored and adherence to our area's safety protocols is not negotiable.</p>	Refer to the response under Salvage. In addition, adherence to the area's safety protocols and appointment of a security company can be discussed during the arrangement of access agreements.
		<p>Protected Area Act One of the planned prospecting areas is closer that 5km of a Protected Area which resort under the Biodiversity Act. According to our information prospecting and mining on such premises are not allowed.</p>	The northern boundary of the Farm Plumstead 418 is located outside the 5km buffer according to data obtained from the Register of Protected Areas Map Service. Please refer to the image below which will be included the final BAR to be submitted to the DMRE. It is the responsibility of the Competent Authority (DMRE in this case) to assess the final BAR and request further input from other departments if considered necessary.

			
<p>Agri Kuruman (Env. Comm.) - Eben Anthonissen</p>	<p>2021/08/11</p>	<p>How much water is used by a drill rig per day?</p> <p>The farmers feel very threatened by all the prospecting right applications because, in this region, there are currently 900 000ha of land under applications. The DMRE sits with a major backlog with instances of three to four prospecting right applications for the same mineral on the same property. The Northern Cape is a water scarce region, and that South Africa as a whole is classified as a water scarce country. The landowners of this area and on the application area abstract water from boreholes for farming activities therefore it is important to know how deep the boreholes will be. The draft report states that a maximum amount of 405 boreholes will be drilled over the application area which is undeveloped land zoned for agricultural use so if a</p>	<p>The amount of water used by the operation will be 5000 litre/day/drill rig but Menar will confirm this, and the final report updated accordingly.</p> <p>Water will be sourced offsite, either form a Water Service Provider or potentially under the existing Water Use License at the East Manganese Mine. The areas of uncertainties will be addressed in the Final BAR.</p>

		<p>viable deposit is found this will require huge investments to establish a mine.</p> <p>Water for dust suppression will have to be obtained from groundwater resources. No landowner is registered as a water service provider and won't be able to supply water for drilling purposes. Therefore water will have to be sourced off site, from Sedibeng Water or Kalahari Oos Pipeline, and trucked in which contributes to the degradation of the surrounding road network as well as safety risks. The extent of the impacts stretches much further than only the application area.</p> <p>A hydrocensus/baseline groundwater study must be done to determine the baseline conditions of the groundwater aquifer and quarterly monitoring to identify potential impacts on the existing abstraction boreholes.</p> <p>The following areas of uncertainty exists at the moment:</p> <ul style="list-style-type: none"> • There is no mention of fire security or the safety impact on the community. • How will the rehabilitation work and how will it be ensured that proper rehabilitation takes place? • Degradation of existing infrastructure. • Dust suppression. • How will landowner safety be ensured? <p>Due to the number of uncertainties, the Applicant needs to take-out third-party</p>	
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		insurance policy because it is not only the landowners but also everyone using the access road who are the directly affected parties by means of dust, safety, and noise impacts	
		Menar will not be allowed to use water from East Manganese Mine because this is a different operation and situated too far away.	If there is sufficient water allocated under the existing Water Use License than an arrangement can be made with DWS to use this water. However, at this stage we are only listing potential options. If there is not water available under the Eat Manganese Water Use License than water will have to be bought from a water service provider.
		The drilling contractor must liaise with the local Fire Protection Agency (FPA) before drilling commences.	Noted. Included as a mitigation measure in Final BAR.
		The draft report focusses on the prospecting area alone, and not the larger area that will be impacted. The Applicant must commit to investigate the larger area, specifically relating to the roads, safety, and dust suppression on gravel roads.	Concern noted and will be addressed in Final BAR.
JD Fourie	2021/08/11	Can the application process be stopped if there is available information proving that there are no viable iron or manganese ore deposits?	Menar will try and gather as much information as possible in a non-invasive manner during Phase 1 of the prospecting operation. If they can't gather enough information to confirm whether there is a viable deposit than they will have to move on to the next phase of the operation. However, should the desktop assessment confirm there are no minerals in the application area, the Applicant will not do any unnecessary drilling or incur any unnecessary costs by continuing with the operation.
J Kalp	2021/08/11	Is it fair to assume that the areas surrounding the application area has already got rights on them because these weren't selected by the Applicant?	The Applicant submitted the application, there can be rights on the surrounding properties, applications submitted by other companies, or the available geological information proves that there is no chance of a viable mineral deposit.
		What will be done to ensure safety of the farmers and how will drilling employees be prevented from wandering around properties?	The drilling team will not consist of many people and explained that the drilling contractor will be responsible to control and monitor the whereabouts of all the employees during the day. Also, no employees will be allowed to remain on the property after working hours without the landowner's consent. The drilling contractor must introduce himself to the landowner before drilling commences and any incidence must be reported to him.

Tswalu Kalahari Reserve – L van der Merwe and G van Dyk	2021/08/11	How were the IAPs notified of the proposed application?	The direct landowners were notified in writing, as well as the direct neighbours. A newspaper notice was placed in the Kathu Gazette and site notices were placed around the application area informing the public about the application and inviting them to register as an IAP.
		Tswalu wasn't notified in writing and only became aware of the application through a site notice after which they contacted the farmers' association regarding this meeting. Tswalu is a proclaimed protected area which lies within 5km from the farm Plumstead and according to the Biodiversity Act no mining activities can take place within 5km unless approved by the Department of Environmental and Nature Conservation.	According to the Northern Cape Critical Biodiversity Areas (CBA) map Tswalu does not fall within 5km of the application area, but this will be confirmed before submitting the final report.
		Mining operations bring in contractors and don't make use of local people which leads to local community unrest therefore it can't be said that the operation will create jobs. If mining commence in 5 years there will be chaos in the area because firstly there won't be water for people, secondly safety will be a problem, and thirdly there will be unrests because the locals aren't employed. It must be specified in the report how locals be empowered because if they don't have jobs it will lead to an increase of crime in the area.	If a Mining Right application is made that these issues will be addressed as part of the Social and Labour Plan.
		A number of faunal and floral species of conservation concern was left out of the presentation. Does the comment that prospecting will not have a significant impact on the animal species apply to all fauna?	The presentation is a summary and that the Draft Report contains a more comprehensive list of species which will be reviewed and updated if necessary before submitting the final BAR. According to the impact assessment prospecting activities will not have a significant impact on the fauna.
	2021/08/17	<ul style="list-style-type: none"> We still haven't received the Scoping Report (or the EIA) for the area where Menar Capital (Pty) Ltd is trying to get 	<ul style="list-style-type: none"> We are in the process of finalising the BAR/EMPr. A copy of the final report submitted to the DMRE will be provided in due course and any further issues and concerns can then be submitted directly to the DMRE.

		<p>prospecting rights. Where is this report?</p> <ul style="list-style-type: none"> • Farm Plumstead 418 is within 5km from a Critical Biodiversity Area, a Proclaimed Formal Protected Area. Please confirm that the Department of Mineral Resources is in direct contact with Nature Conservation about the Menar Capital (Pty) Ltd application to prospect within 5km of Proclaimed Formal Protected Area. • Attached is a list of all Vertebrata species in the prospecting areas. Would you please inform us how Menar Capital (Pty) Ltd plans to protect each listed species? • In the area of the prospecting sites is 26 protected plant species (Tania Anderson, Specialist Surveyor). Is each of these plants/trees added to your EIA list, and how will Menar Capital (Pty) Ltd prevent any damages caused to these species? 	<ul style="list-style-type: none"> • The northern boundary of the Farm Plumstead 418 is located outside the 5km buffer according to data obtained from the Register of Protected Areas Map Service. Please see attached image which will be included the final BAR to be submitted to the DMRE. It is the responsibility of the Competent Authority (DMRE in this case) to assess the final BAR and request further input from other departments if considered necessary. • The Final BAR will be updated with the list of species provided. The BAR lists the important taxa found within the three vegetation types namely Kathu Bushveld (Mapping Unit SVk12), Koranna-Langeberg Mountain (SVk15) and Olifantshoek Plains Thornveld (SVk 13). The proposed prospecting activities is not anticipated to have a significant impact on the vertebra species due to the limited footprint and temporary nature of invasive prospecting activities. Furthermore, the proposed prospecting activities will allow for enough flexibility in drilling to avoid sensitive environmental features. Should the prospecting right be granted, then prospecting would be done under an approved EMPr (Part B) and Prospecting Work Programme to ensure minimum damage to the environment. Mitigation measures included in the BAR/EMPr to protect listed species and prevent damage to protected plant species include: <ul style="list-style-type: none"> ➤ Plan location of drill sites properly to avoid sensitive features such as watercourses and ESAs. ➤ Survey prospecting sites and routes in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or where unavoidable obtain permits to remove/relocate protected species. ➤ Do not hinder, harm, or trap animals. ➤ Restrict vegetation clearance. ➤ Remain in designated roads as far as possible.
<p>Unidentified IAP</p>	<p>2021/08/11</p>	<p>Since the Applicant is in the process of applying for a prospecting right, the farmers have the right to request a more in-depth assessment of the environment, especially regarding the groundwater resources, so they can be aware of the risks of the operation. It is very important for the farmers to review such a groundwater study before they decide to allow prospecting on their properties.</p>	<p>This request is noted but during prospecting application all the specialist studies aren't done because the impacts are limited and the timeline available to complete a BAR is not sufficient to conduct a full groundwater impact assessment for instance. The need for a hydrocensus/groundwater baseline study can be included as a condition of authorisation but at this stage there aren't enough time left to conduct the study before the deadline.</p>

<p>Mark Botha</p>	<p>2021/08/18</p>	<p>Please receive my objection to the issuing of the prospecting right on 2 of the four 4 properties for which Menar has applied.</p> <p>In essence the granting of rights on Plumstead and Gnoolooma would jeopardise the protection of the Ecological Support Area identified down the spine of the Korannaberg/Langeberg in the Provincial Biodiversity Sector Plan of the DAEALRD, and would frustrate the expansion of any protected area opportunities in this ecological sensitive area.</p> <p>Further, these areas are within 5 km of an existing protected area, and/or identified future expansion of this area. Any enhanced rights would detrimentally impact on these initiatives</p>	<p>With regard to location of the application area, the prospecting activities are delimited by the properties available for prospecting (i.e., not declared off limits or not held by another company) and the geology of the surrounding area. Should the government not declare the area off limits for mining and is protected, then the mining houses would continue to apply for rights over these properties.</p> <p>The proposed prospecting activities will not result in a change in character of the site and the limited footprint of invasive prospecting activities will allow for enough flexibility in drilling to avoid sensitive environmental features and maintain the ecosystem function. Should the prospecting right be granted then prospecting would be done under an approved EMPr and Prospecting Work Programme to ensure minimum damage to the environment. Furthermore, the final BAR states that the Applicant must avoid conducting invasive prospecting activities within sensitive areas identified inside the application area such as watercourses and Ecological Support Areas (ESAs). Mitigation measures included in the BAR/EMPr to protect listed species and prevent damage to protected plant species include:</p> <ul style="list-style-type: none"> ➤ Plan location of drill sites properly to avoid sensitive features such as watercourses and ESAs. ➤ Survey prospecting sites and routes in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or where unavoidable obtain permits to remove/relocate protected species. ➤ Do not hinder, harm, or trap animals. ➤ Restrict vegetation clearance. ➤ Remain in designated roads as far as possible. <p>The northern boundary of the Farm Plumstead 418 is located outside the 5km buffer according to data obtained from the Register of Protected Areas Map Service. Please see attached image which will be included the final BAR to be submitted to the DMRE. It is the responsibility of the Competent Authority (DMRE in this case) to assess the final BAR and request further input from other departments if considered necessary.</p>
<p>Rooiwal Farmer's Association – JJ du Bruyn</p>	<p>2021/08/18</p>	<p>Safety and security: We emphasise that the protection, safety and security of our farming area and inhabitants remain of utmost importance. A security company of our choice (which will be local) must be sub-contracted to patrol and monitor the roads and drilling areas. 24 hour</p>	<p>The following mitigation measures are included in the BAR/EMPr:</p> <ul style="list-style-type: none"> - Ensure farm gates are always closed. - No employee will be allowed to loiter around farms. - The drill contractor must monitor the whereabouts of the drill team. <p>Regular monitoring of all the environmental management measures and components shall be carried out by the holder of the prospecting right in order to ensure that the provisions of this EMPr are</p>

		<p>communication must be established between the farm owner and the security company.</p>	<p>adhered to. Furthermore, an access agreement will be arranged with the directly affected landowners before invasive prospecting activities commence. During this arrangement, the drilling contractor's foreman will introduce himself to the landowner and establish a direct communication channel between the parties through which non-compliances can be reported and addressed. The access agreement will also be used to ensure that the drilling contractor is aware of the EMPr commitments, access agreement and environmental authorisation conditions and the consequences if these aren't met.</p> <p>In addition, adherence to the area's safety protocols and appointment of a security company can be discussed during the arrangement of access agreements.</p>
		<p>Fire risk: We emphasise that a fire risk (people that make fires, cigarettes that is thrown away, etc) is extremely high and have the potential to ruin our whole area. A trained fire fighting team with serviceable equipment must be deployed at each drilling site and also be ready to deploy in the instance of fire on roads.</p>	<p>The drilling contractor will take-out third-party insurance and the Applicant will implement the following firefighting management measures stipulated in the EMPr:</p> <ul style="list-style-type: none"> - No employees will be allowed to make any open fires on the farms or adjacent land. - Cigarette butts may not be thrown in the veld but must be disposed of correctly. - Contractors must ensure that basic fire-fighting equipment and suitably qualified/experienced personal are always available on site. - Fire extinguishers shall be placed at working areas and all areas where hazardous substances are kept. - The drilling contractor must liaise with the local Fire Protection Agency (FPA) before drilling commences.
		<p>Roads: We already spend a lot of time and money to just get our current roads driveable. In a lot of instances, each farmer still maintains the road passing his/her farm with our own equipment and funds. The current roads will not be able to handle an additional influx of vehicles and trucks. A plan to daily maintain the roads wrt surface and dust must be submitted.</p>	<p>Prospecting will not involve a significant number of trucks and vehicles. Menar will not make use of more than 2 drill rigs and a maximum of two vehicles along with one water tanker per drill site. The drill rig will not travel on the main roads other than mobilising on to the specific site. The water truck and LDVs will travel on the main roads, however it will be clearly communicated that these vehicles should not do any unnecessary traveling. Existing farm roads and tracks will be utilised as far as possible however, where a road does not exist temporary access roads will be established to access a drill site after consultation with the landowner. The type of access envisaged is limited to removal of large rocks and disturbance of vegetation. Such access roads may also require 'light' grading to allow the movement of surface mobile vehicles.</p> <p>Drilling sites, access routes and camp sites are to be finalised in conjunction with the landowner / user and an agreement reached before prospecting activities commence on site. A plan to maintain the roads can form part of the access agreement. If infrastructure were damaged by the drill team the Applicant must repair the damages (i.e., grade farm roads that have been damaged due to use by prospecting team). Any access road or portions thereof, constructed by the Applicant and which will no longer be required by the landowner, shall be rehabilitated as described in the Closure Plan</p>

			<p>(Appendix 5). Finalization will only be agreed on with both project manager and landowner signatures agreeing that this has in fact been achieved. Rehabilitation of the area will start as soon as the drill team has finished on the site.</p>
		<p>Underground water: The underground water available in our region will not be able to sustain our farming, livestock, as well as that of drilling. A workable plan must be submitted. This plan must include compensation if the prospecting drills through our aquifer and we lose our water to the surrounding mines. This will have a catastrophic impact on our farmland, farming activities and economic sustainability. The water table must be measured on all the farms (this include the surrounding farms where drilling are going to take place) BEFORE drilling commences. It must again be measured AFTER drilling is completed. Any deviation must be financially compensated for.</p>	<p>10 000 – 20 000 litres of water will be used per day for the drilling operation (2 rigs at a time). Water will also be brought onto site for potable use, this is estimated at 20 litres per crew/day. At this stage it can only be stated that water will be sourced off site from existing lawful water users or water service providers. The Applicant will recycle water from the sumps to re-use on the rig.</p> <p>Should the prospecting right be granted then prospecting would be done under an approved EMPr and Prospecting Work Programme to ensure minimum damage to the environment. Mitigation measures included in the BAR/EMPr to reduce the risk of groundwater contamination include:</p> <ul style="list-style-type: none"> - Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. - Use percussion drilling to drill through the clay and just before the ore bearing seam switch over to diamond drilling to avoid the use of chemicals. - Follow the equipment’s operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. - Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made. - Line sumps with the appropriate lining system. - Isolate porous or highly transmissive groundwater zones through capping or grouting to prevent clean groundwater ingress or recharge of contaminated water. - Equip vehicles on site with drip trays and place drip trays under leaky equipment. - Spill kits must be available on site in the event of a spillage. - Adhere to safe work procedure when refuelling vehicles and machinery. - Hydrocarbons must be stored within portable bund tanks. - Inspect, repair, and replace any damaged toilets. - Appoint the necessary reputable contractor to manage portable toilets. - Implement proper housekeeping and hygienic practices. <p>The following has been included as a condition of authorisation: A baseline groundwater study/hydrocensus must be done during Phase 1 of the prospecting operation to establish the baseline groundwater conditions against which the potential impacts can be monitored.</p>

			<p>Mitigation measures included in the BAR/EMPr to reduce the risk of disrupting the aquifers are listed below:</p> <ul style="list-style-type: none"> - Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources. - Limit development to target rocks and reduce exposure of aquifer rocks. <p>In addition, there are drilling techniques other than diamond drilling available on the market. The Applicant will investigate whether such methods (i.e., air flush – does not use water for drilling) are feasible. If this is the case Menar would consider using a contractor who can do this type of drilling.</p> <p>Lastly, financial compensation, if prospecting results in the depletion of surrounding abstraction boreholes, can be included in the access agreements.</p>
Competent Authority			
DMRE		No comments received to date.	
Commenting Authorities			
DWS	2021/06/01	<p>Please take note that due to the high volumes of receipt of BID documents and the workload that this Office is currently experiencing we do not comment, we only comment on the final document and also take note of the following:</p> <p>Should the project continue:</p> <ul style="list-style-type: none"> a) An application can be lodged electronically via the Electronic Water Use Licence Application and Authorisation (EWULAA) system (www.dws.gov.za/ewulaas). b) a site visit and pre consultation meeting must be conducted by a DWS official with the applicant, following an application for Water Use License Authorisation. This must be submitted to DWS in 	<p>Noted. The exact location and number of boreholes drilled will be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. It is expected that the need for a Water Use License or GA will only be finalised once the non-invasive prospecting study have been completed. If required, the application will follow the process outlined in the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals, March 2017 published by the Department of Water and Sanitation (DWS).</p> <p>It can be stated that invasive prospecting (drilling) will avoid watercourses through the establishment of buffer zones around these areas in which no activities will be allowed without the necessary authorisations, licenses and/or permits. The project also aims to utilise water from existing lawful users, an irrigation board or water services provider. Should water be required from a water resource if the above is unsuccessful a water use registration will be applied for.</p>


		terms of the National Water Act, 1998 (Act 36 of 1998) before any prospecting/mining activities take place.	
SAHRA	2021/06/25	<p>Interim Comment (1)</p> <p>(1) The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit requests that a field-based assessment of the impact to heritage resources be conducted as part of the EA application process. The assessment must comply with section 38(3) of the NHRA. Additionally, the assessment of the impact to archaeological resources must be conducted by a qualified archaeologist and comply with the 2007 SAHRA Minimum Standards: Archaeological and Palaeontological Components of Impact Assessments.</p> <p>(2) As the prospecting rights application area is located in an area of moderate sensitivity for palaeontological resources as per the SAHRIS PalaeoSensitivity map, a desktop Palaeontological Impact Assessment (PIA) must be required to be undertaken by a qualified palaeontologist. (See https://www.palaeosa.org/heritage-practitioners.html for a list of qualified palaeontologists). The report must comply with the 2012 Minimum Standards: Palaeontological Components of Heritage Impact Assessments.</p>	<p>Response to Interim Comment (1)</p> <p>The preliminary positions of the proposed prospecting boreholes have only been sited, in-line with an economically acceptable grid (SAMREC), to give a representative sample for the project area as indicated in Figure 4 of the draft BAR. The exact location and number of boreholes drilled will only be determined through the non-invasive techniques, described in Section 6.2.1 of the draft BAR, during Phase 1 of the proposed prospecting operation. While the size of the application area is large (18,472,27 Ha), invasive prospecting activities is not expected to exceed 1 ha in size and existing roads will be used as far as possible. The EMPr has made allowance for mitigation measures to ensure avoidance of heritage sites should they be encountered since the proposed borehole locations will allow for enough flexibility to avoid these areas. Where unavoidable, the EMPr stipulates that if there is a need to conduct activities in any of these areas, then the necessary Authorisations/Permits will be obtained under SAHRA.</p> <p>Therefore, a Heritage Impact Assessment was not deemed necessary at this stage of the project because the proposed prospecting activities is not anticipated to result in a change in character of the site and due to the limited footprint of invasive prospecting activities the current land use (grazing by livestock and game) can continue concurrently. Furthermore, due to the extent of the application area the fieldwork required as part of the heritage assessments will cover areas revealed by the desktop study as having the highest potential for containing sites. As such, it must be noted that the fieldwork will not be aimed at assessing every component of the entire application area. Once prospecting footprints become available, more fieldwork will likely be required.</p> <p>In light of the above, we would like to request if the assessments can be conducted after Phase 1 of the prospecting operation so the fieldwork can focus on the specific prospecting footprints assessing every component of these areas?</p> <p>Taking into account the interim comments received, the following statements/commitments will be included in the Final BAR/EMPr:</p> <ul style="list-style-type: none"> • Part A Section 15.5: Aspects for inclusion as conditions of Authorisation will be updated as follows: ➤ A field-based assessment of the impact to heritage resources and a desktop Palaeontological Impact Assessment (PIA) must be conducted after Phase 1 of the prospecting operation. The assessments will comply with section 38(3) of the NHRA and will be conducted by a qualified archaeologist and palaeontologist in line with the 2007 SAHRA Minimum Standards: Archaeological and Palaeontological Components of Impact Assessments and the 2012

	<p>2021/07/14</p>	<p>Interim Comment (2) In an Interim Comment issued on the 25/06/2021, SAHRA requested that a field-based assessment of the impact to heritage resources be conducted as part of the EA application process which must include a desktop Palaeontological Assessment.</p> <p>On the 14/07/2021, the EAP provided a response to the Interim Comments noting that the exact location and number of boreholes will only be determined during Phase of the proposed prospecting operation. The EAP has stated that an HIA would not be necessary at this stage and that the condition for a field-based HIA and desktop PIA prior to drilling would be included in the final BAR/EMPr for inclusion in the authorisation.</p> <p>(3) The assessment of the impact to heritage resources is a requirement in terms of section</p>	<p>Minimum Standards: Palaeontological Components of Heritage Impact Assessments, respectively.</p> <ul style="list-style-type: none"> • Part B Section 5: Impacts to be Mitigated, Management Actions, Outcomes and Standards to be Achieved will be updated as follows: <ul style="list-style-type: none"> ➤ Establish and maintain the buffer zones around the identified heritage sites as recommended by the qualified archaeologist and palaeontologist. <p>Response to Interim Comment (2) A Phase 1 Heritage Impact Assessment & Palaeontological Desktop Study was conducted by UBIQUE Heritage Consultants in response to SAHRA's interim comments for CaseID: 16605.</p> <p>Refer to Section 12.2 for a summary of the findings of this assessment and Appendix 8 for a copy of the report.</p>
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		24(4)(b)(iii) of NEMA. Additionally, any EA application must comply with section 38(8) and 38(3) of the NHRA. Therefore, a desktop HIA inclusive of a desktop PIA must be conducted as part of the EA application process.	
DAERL & Northern Cape DFFE	J Mans	1. Developmental pressures within the Kathu Bushveld vegetation type is reaching concerning levels from an environmental perspective. Solar developments in addition to mining appears to be the most concerning due to the hectareage in surface area they cover (footprints), lowering of water table for open cast mining (threat to aquifer dependent ecosystems), and their associated pollution and other associated biodiversity threats.	<p>At this stage it is only a prospecting right application. The proposed prospecting activities is not anticipated to result in a change in character of the site and due to the limited footprint of invasive prospecting activities the ecosystem function will be maintained. Should the prospecting right be granted then prospecting would be done under an approved EMPr and Prospecting Work Programme to ensure minimum damage to the environment. Mitigation measures included in the BAR/EMPr to protect listed species and prevent damage to protected plant species include:</p> <ul style="list-style-type: none"> • Plan location of drill sites properly to avoid sensitive features such as watercourses and ESAs. • Survey prospecting sites and routes in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or where unavoidable obtain permits to remove/relocate protected species. • Do not hinder, harm, or trap animals. • Restrict vegetation clearance. • Remain in designated roads as far as possible. <p>If the right is granted and the mineral reserve is found to be viable than a mining right application will be made at which stage the potential impacts of a mine will be assessed in detail.</p>
		2. Aligned to the Environmental Sector’s mandate, the National Environment Management Act of 1998 (NEMA) provides for the ‘polluter must pay’ principle, under which biodiversity offsets are enabled through/under the EIA process. In addition, the Environmental Sector is mandated to ensure that conservation targets are met for ecosystems, that ecosystem function is maintained and that species do not go extinct (National Environment Management: Biodiversity Act of 2004, NEMBA)	Refer to the response above under Point 1.

	<p>3. Accordingly, biodiversity offsets are being implemented within the Kathu Bushveld to adhere to the Sector’s mandate of ecosystem and species protection. Mines that have triggered biodiversity offsets include Sishen mine, Khumani mine / Assmang Iron Ore mine, Kudumani Managanese Resources (KMR) mine, Tshipi é Ntle Manganese Mining (Pty) Ltd (trading as Tshipi Borwa Mine), Assmang Black Rock Mine Operations (BRMO) mine which include Gloria Mine, Kolomela Mine / Kumba Iron Ore, Mokala Manganese mine, and UMK Manganese mine. Sitatunga Manganese mine will trigger an offset when their footprint increase.</p>	<p>The exact location and number of boreholes drilled will only be determined through the non-invasive techniques during Phase 1 of the proposed prospecting operation. While the size of the application area is large (18,472,27 Ha), invasive prospecting activities is not expected to exceed 1 ha in size and existing roads will be used as far as possible. The proposed prospecting activities will not result in a change in character of the site and the limited footprint of invasive prospecting activities will allow for enough flexibility in drilling to avoid sensitive environmental features and maintain the ecosystem function therefor an offset strategy is not considered necessary at this stage of the project.</p>
	<p>4. Several of the solar developments also triggered offsets making available offset areas limited within this ecosystem. There is also about five solar developments within this same ecosystem (Kathu Bushveld) that have triggered biodiversity offsets that are at various stages towards their Nature Reserve proclamations.</p>	<p>Noted.</p>
	<p>5. On request from most clients involved in offsets, property names can only be shared after it is has been purchased and/or declared as a Nature Reserve under the National Environment Protected Areas Act of 2003 (NEMPA).</p>	<p>Noted. The information provided under Point 6 will be included in the BAR. The Applicant selected the application area based on extensive research on the geology of the area. The prospecting activities are delimited by the properties available for prospecting (i.e., not declared off limits or not held by another company) and the geology of the surrounding area. Should the government not declare the area off limits for mining and protected, then the mining houses would continue to apply for rights over these properties.</p>
	<p>6. As a result of the extant of developments within the greater Kathu Bushveld area, limited offset receiving sites remain. I connectivity between different vegetation types and/or conservation corridors. It is of utmost importance to note that, in order to</p>	<p>Refer to response above under Point 5.</p>

	<p>safeguard longterm functionality of the ecosystem(s) that support keystone species (i.e. Vachellia erioloba, V. haematoxylon, etc.), and migration corridors, potential intact units that can be linked into corridors and conservation areas should be sourced as suitable offset-receiving areas. Having small, isolated pockets of conservation areas, would not in the long-term safeguard the country from species losses and extinction of some plants and animal species that are locally endemic, rare, protected, specially protected, vulnerable, endangered, and critically endangered. Some areas need to be left intact, without the disturbances caused by prospecting, if we are to succeed in our conservation efforts. Accordingly, a corridor linking Tswalu, Glen Lyon and Witsand Nature Reserves with the Langeberg mountain range has been identified for potential future offset receiving areas (see Figure 1). Biodiversity offset sites have already been proclaimed within this corridor (Brooks and Bredenkamp NRs), few have been purchased but not yet proclaimed with numerous properties identified and being negotiated for purchase as offsets.</p> <p>7. The Forestry Branch of the Department of Forestry, Fisheries and Environment and the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL; former DENC), became aware of this application for prospecting rights and environmental authorisation 1 day prior to the due date for comment submission.</p>	<p>The following steps were taken to notify potential stakeholders about the prospecting right application:</p> <ul style="list-style-type: none"> - Notification letter and Background Information Document (BID) was sent via registered post to the DAERL postal addresses obtained from the website (Private Bag X6102, Kimberly, 8300 & Private Bag X5018, Kimberley, 8300) on the 7th of May 2021. No response was received.
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	<p>This is of great concern as several biodiversity offsets with numerous mining and renewal energy facilities operating in the area are currently under investigation and this may jeopardise the immense hard work, finances and time spend to date in sourcing suitable offset sites, to be formally declared as Protected Areas under the NEMPA.</p> <p>8. The DFFE & DAERL thus hereby object against the granting of the environmental authorisation for prospecting on the properties mentioned. We urge the applicant to do proper consultation with the said Departments as a result of offset negotiations already under way in the area of question (some of this is confidential).</p>	 <ul style="list-style-type: none"> • A press notice was placed in the local newspaper (Kathu Gazette) on the 21st of May 2021, notifying the public of the application. The notice also requested the public to register as an IAP with the Public Participation Office in order to receive all future correspondence regarding this project. • Site notices were placed at various points in and around the application area informing the public about the application and requesting the public to register as an IAP with the Public Participation Office in order to receive all future correspondence regarding this project.
	<p>9. The Departments are thus requesting copies of the draft Basic Assessment Report and specialist studies on ecological impacts, and an additional 30 days to comment, to ascertain whether any of the properties affected, may impact negatively on future conservation plans. If additional time cannot be granted, we recommend that the EA not be authorised.</p>	<p>The deadline for submission of the final BAR is 23 August 2021. Unfortunately, the Department of Mineral Resources and Energy (DMRE) will not grant further extension to the timeframes. A soft copy of the final report submitted to the DMRE will be provided and any further issues and concerns can then be submitted directly to the DMRE.</p>

		<p>10. The applicant must also note that a Prospecting Right does not exempt a person from complying with other applicable environmental legislation such as the National Forests Act, Act 84 of 1998 and the provincial Northern Cape Nature Conservation Act, Act 9 of 2009. To remove or relocate protected trees, plants and animals, a Forest Act License and Flora and Fauna Permits must be obtained from the relevant authorities, after getting the Environmental Authorisation, but prior to mining or any activity resulting in vegetation clearance. A walk-through must be conducted by a botanist, to identify plants and assist with the application for the Forest Act License and Fauna and Flora Permits.</p>	<p>Noted. The following aspects for inclusion as conditions of Authorisation forms part of the BAR:</p> <p><i>The Applicant must ensure compliance with all relevant legislation including but not limited to:</i></p> <ul style="list-style-type: none"> • <i>MPRDA, 2002 (Act 28 of 2002)</i> • <i>NEMA, 1998 (Act 107 of 1998)</i> • <i>Northern Cape Nature Conservation Act, Act 9 of 2009</i> • <i>National Environmental Management: Waste Act (No. 59 of 2009) GNR 921 (9 November 2013)</i> • <i>National Water Act ,1998 (Act No.36 of 1998)</i> • <i>National Environmental Management: Air Quality Act (Act No. 39 of 2004) GNR 893 (22 November 2013)</i> • <i>Noise Control Regulations (GN R154 of 1992)</i> • <i>National Environmental Management: Biodiversity (Act No.10 of 2004)</i> • <i>National Forest Act (No. 84 of 1998)</i> • <i>National Veld and Forest Fire Act, Act 101 of 1998</i> • <i>National Heritage Resources Act, Act (NHRA), 1999 (Act No. 25 of 1999)</i> • <i>Hazardous Substances Act (No. 15 of 1973)</i> • <i>Conservation of Agricultural Resources Act (No. 43 Of 1983)</i> • <i>Mine Health and Safety Act (No. 29 of 1996)</i> <p>In addition, the protected species must remain in situ until the necessary permits are obtained under NEM:BA.</p>
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12 Environmental attributes associated with the development footprint (Baseline Environment)

The objective of this section is to describe the type of environment that will be affected by the proposed activity. The baseline information presented below will be used to determine protection, remedial measures, and environmental management objectives. The methodology used to assess the baseline environment is described below.

An in-depth assessment of the proposed application was undertaken using the following available information:

- Existing environmental reports such as the EMPr's completed in support of the prospecting right application and specialist studies conducted in and around the study area.
- EIA Report for Southern Ambition 1549 (Pty) Ltd.
- EIA Screening Tool.
- Phase 1 Heritage Impact Assessment & Palaeontological Desktop Study.
- South African National Biodiversity Institute (SANBI).
- Google Earth.

A site inspection was conducted to confirm the information obtained through the desktop study and to assess the current state of the environment as well as the need for specialist studies.

Consultation with the landowners were also utilised to determine the environmental attributes of the application area.

The application area is divided in two separate parts referred to in this section as the Northern (Farms Diepwater and La Rochelle) and Southern (Farms Plumstead, Melton and Gnoolooma) Parts.

12.1 Geology

The application area generally underlain by the Kalahari Formation and is located in the vicinity of a number of operating manganese operations and approximately 76km North-West of Sishen.

The Sishen Iron Ore Mine in the Postmasburg district produces 22 Mt of iron ore annually of which 67% is exported, while the rest is consumed within South Africa. The Kalahari manganese field is located some 65 km further to the north of Sishen. The entire manganese field is overlain by a sand cover, known as the Kalahari Formation. The Kalahari Manganese Field is a 400 km² basin containing some 80% of the world's economic manganese ore resources. At the base is a thick sequence of platform carbonates of the Campbell Rand Subgroup which in turn is overlain by the Abestos Hills and Koegas Subgroup banded iron formations. These are overlain by the Manganese Formation, a glacially derived sequence of sediments and the lavas of the Ongeluk Formation.

Overlying the Ongeluk lavas is the 140m thick Hotazel Formation, composed of mainly banded iron formations and manganese lutites. The Mooidraai Formation limestones and dolomites conformably overlies the Hotazel Formation. These rocks are overlain by the shales, quartzites and conglomerates of the Mapedi Formation.

The Permian Dwyka Group of the Karoo Supergroup unconformably overlies the Mapedi Formation, which in turn is overlain by the Tertiary Kalahari Group, which are mainly calcretes, sand and gravels.

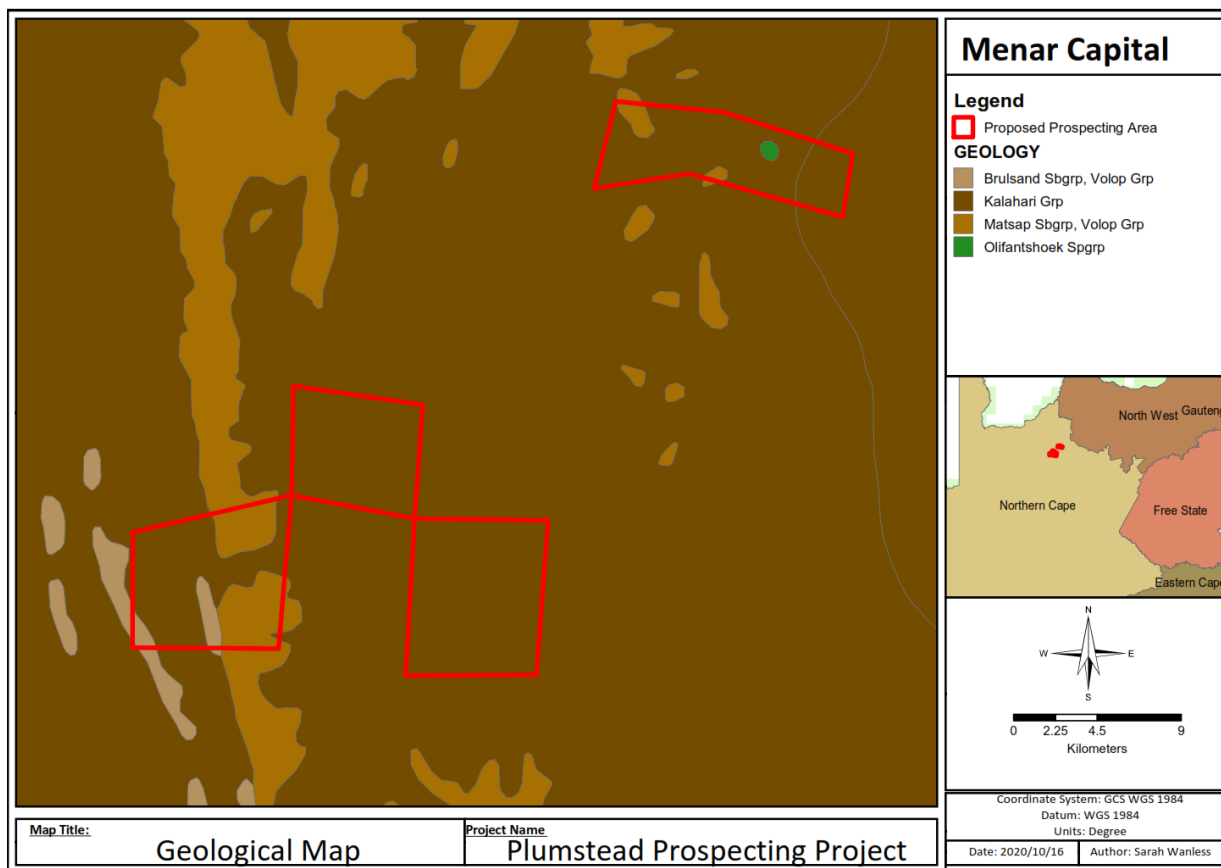


Figure 7: Geological Map

12.2 Topography

Based on a review of the 20 m contours of the 1:50 000 Topographical Maps of South Africa, the Ga-Mogara catchment is bounded to the west, south and east by a sharp outcrop of hills, with elevations of 1200 mamsl at the foot of these hills up to and exceeding 1700 mamsl in the highest points within these hills. With the exception of these hills, which form a minor part of the catchment, the gradients are gentle <1% and slope from the foot of the hills which is between 1200 – 1300 mamsl to the outlet of the Ga-Mogara at between 1000 and 1020 mamsl.

Two land facets are present on the application area. Dunes occur as high-gradient hills in the west of the southern part, on the Farm Gnoolooma 416, while the remainder of the site represent slightly undulating plains (Refer to Figure 8).

The topography around the application area range between 1100 mamsl (Northern Part) and 1400 mamsl (southern part). It is also important to note that within the application area, there are areas which form natural depressions, which may encourage ponding during storm events.

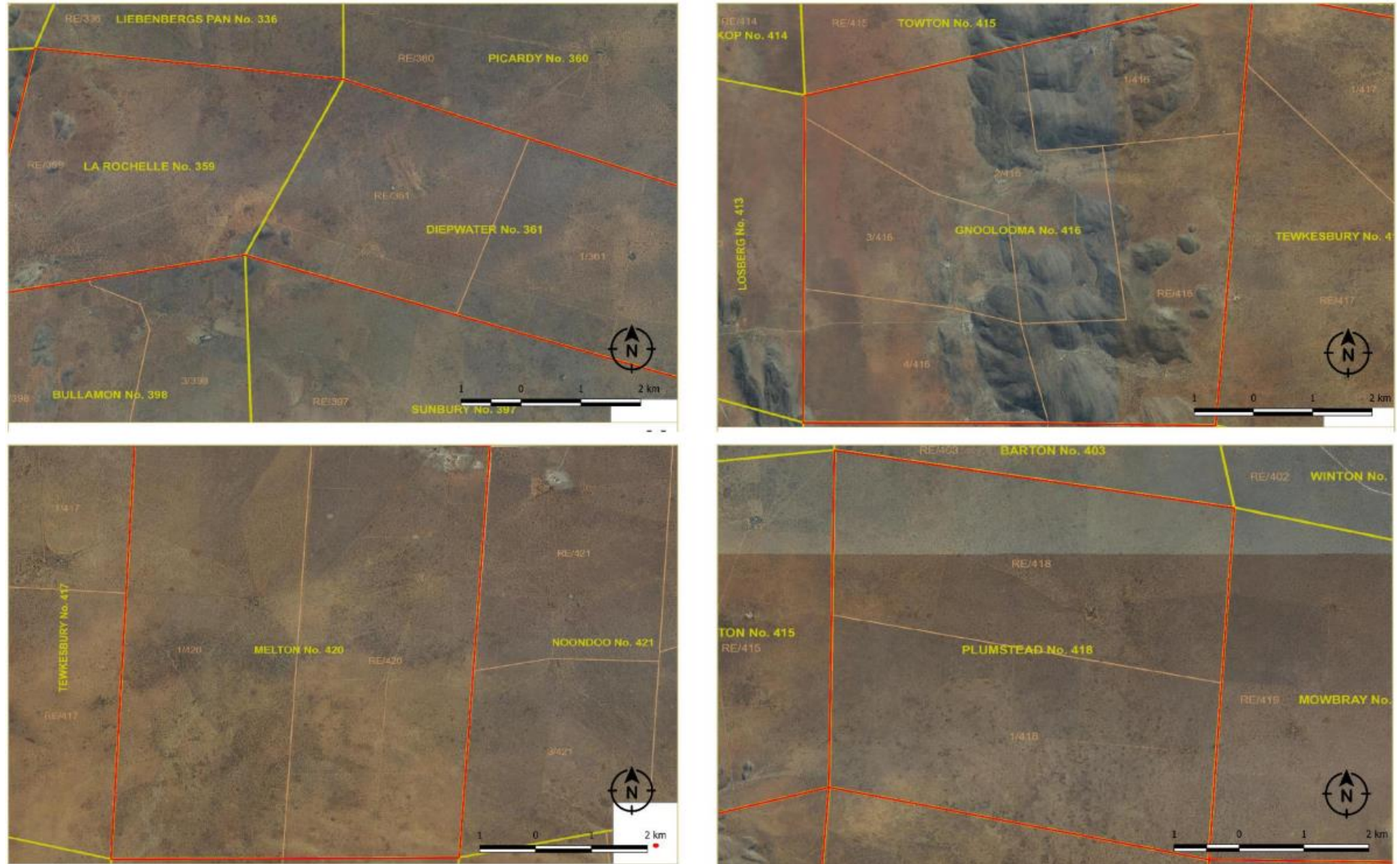


Figure 8: Aerial views of the topography of the different affected properties

12.3 Climate

The application area's climate is described as semi-arid with high daytime temperatures of up to 40°C during the summer months of November to February and sub-zero temperatures during the winter months of June to August.

The average climate for the area is presented in Figure 9 using the outcome of the investigation into rainfall and evaporation for the application area. While evaporation is showing as greatly exceeding rainfall, this is representative of the maximum A-Pan equivalent potential evapotranspiration that could occur assuming no limitations are placed on evaporative demand. The combination of rainfall, evaporation, and temperature result in a hot arid desert climate according to the Köppen-Geiger climate classification (Taken out of the HYDROLOGICAL ASSESSMENT OF THE PROPOSED EAST MANGANESE MINE September 2018 Version 2 by Highlands Hydrology).

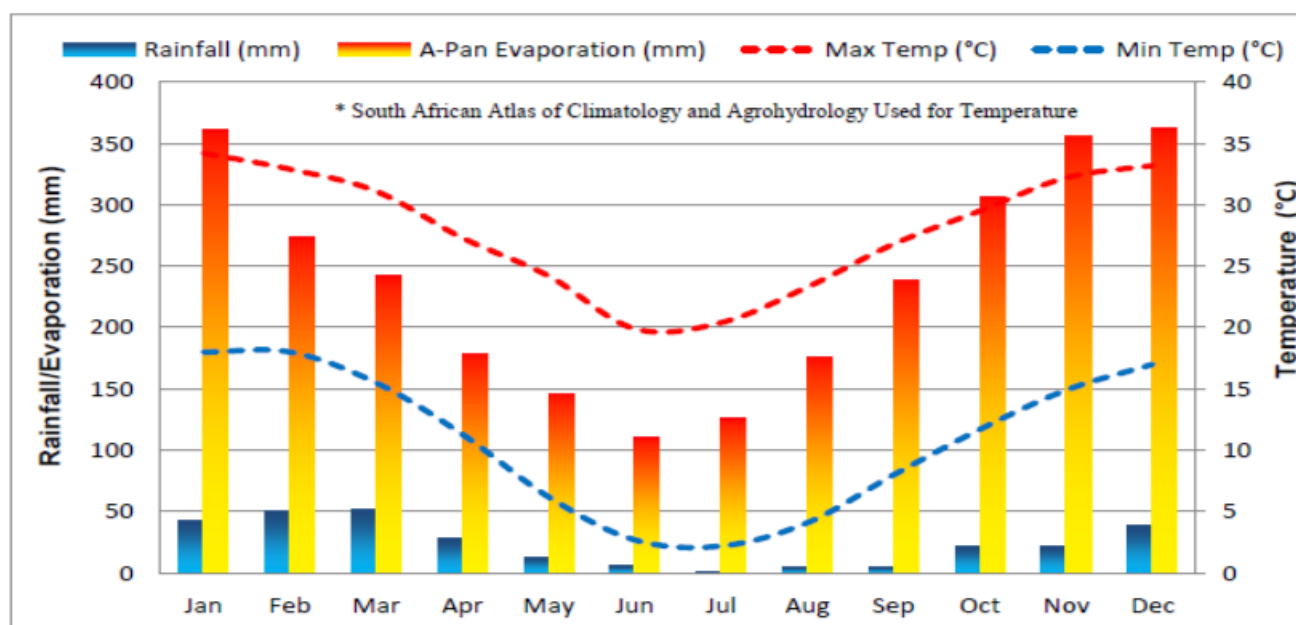


Figure 9: Average Monthly Climate for the area

The mean rainfall of 350mm per annum occurs during the summer months and is accompanied by thunderstorms. The variance in the annual rainfall is large, ranging from as little as 150mm to as much as 800mm. Wind direction is generally from a north-westerly direction.

Fog and snow are unlikely to occur in the area, and thunder showers irregularly occur in the summer months from October to March. The period during which frost can be expected lasts for about 120 days (May to August). With extreme minimum temperatures to below 8°C at night in the winter, frost development can be severe.

Hail is sometimes associated with thunderstorms and mainly occurs in early to late summer (November to February). It occurs on average three times a year and although these storms may sometimes be severe and cause much damage, they usually impact on a relatively small area. Rainfall in excess of 36 mm during a 60-minute period does not frequently occur.

High winds, in excess of 8.0 m/s, are likely to occur at a frequency of 0.6% (i.e., once in every 22 days of the year). This is common in the months of September and October.

Excessive temperatures (i.e., above 45 °C) can occur in the months of December and January. These frequently correlate with an excessively dry humidity score.

Droughts are common and may vary from mild to severe. During these periods dust storms sometimes occur, depending mainly on denudation of the surface.

12.4 Soils, Land Use and Capability

Dominant soil types within quaternary catchment D41K are made up of Chromic Cambisols to the western parts and Ferralic Arenosols to the eastern parts. Calcic Solonchaks soils occur within the centre parts of the quaternary catchment.

The application area is situated in the western part of the D41K quaternary catchment. The dominant soil type, Chromic Cambisols, cover a large portion of the world's area (approximately 1.5 billion hectares), thus occurring in a wide variety of environments.

Soils in this region usually show the following characteristics:

- Soils have minimal development, are usually shallow, on hard or weathering rock, with or without intermittent diverse soils.
- Lime is generally present in part or most of the landscape.
- Red and yellow well-drained sandy soil with high base status may occur.
- Freely drained, structure less soils may occur.
- Soils may have favourable physical properties.
- Soils may also have restricted depth, excessive drainage, high erodibility and low natural fertility.

The agricultural theme sensitivity of the application area is indicated as medium according to the National Web-based Environmental Screening Tool (Refer to Figure 10 and 11). The land capability has not been described in detail as the impact of prospecting will not significantly affect the land capability of the area.

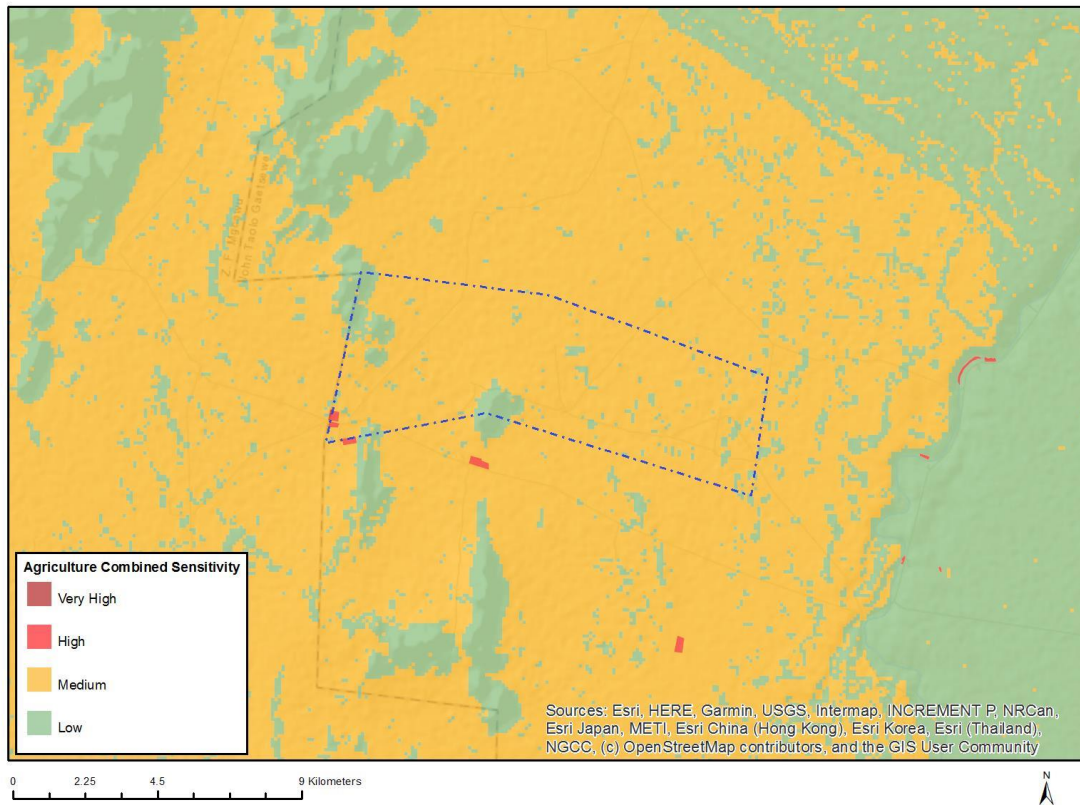


Figure 10: Agricultural theme sensitivity of the Southern Part of the application area

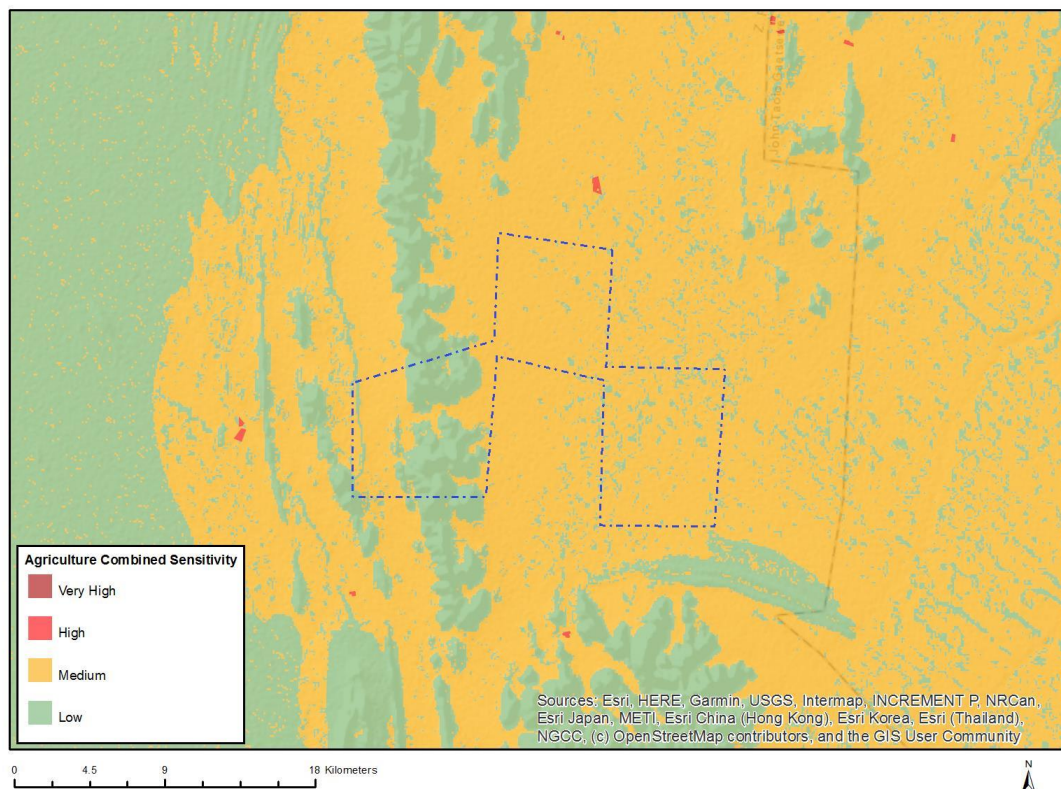


Figure 11: Agricultural theme sensitivity of the Northern Part of the application area

12.5 Terrestrial Biodiversity

The application area is located in the savanna biome and comprises elements of three vegetation types, according to SANBI (2018) and National Biodiversity Assessment (2018), namely Kathu Bushveld (Mapping Unit SVk12), Koranna-Langeberg Mountain (SVk15) and Olifantshoek Plains Thornveld (SVk 13) (Refer to Figure 12 below).

The characteristics of the savanna biome and the relevant vegetation types are discussed below:

12.5.1 Savanna Biome

The savanna biome is the largest in South Africa, covering approximately 35% of the country's land surface (Scholes & Walker, 1993). Savannas are characterised by a dominant grass layer, over-topped by a discontinuous, but distinct woody plant layer. Compositionally, Africa's savannas are distinguished as either fine-leafed savannas or broad-leafed savannas, based primarily on the fertility of the underlying substrate (Scholes & Walker, 1993).

Fine-leafed savannas typically occur on nutrient rich soils and are dominated by microphyllous woody species of the Mimosaceae family (common genera; Acacia & Albizia) and a productive, diverse herbaceous layer, dominated by grasses (Scholes & Walker, 1993). These savannas can support a high population of grazing and browsing herbivores. Conversely, broad-leafed savannas usually occur on nutrient poor soils and are dominated by macrophyllous woody species, from the Combretaceae family (common genera; Combretum & Terminalia). Compared to fine-leafed savannas, broad-leafed savannas are less productive and support a lower herbivore biomass (Scholes & Walker, 1993). Primary determinants of savanna composition, structure and functioning include fire, a distinct seasonal climate, substrate type, as well as browsing and grazing by large herbivores (Scholes & Walker, 1993).

12.5.2 Kathu Bushveld

The entire northern part of the application area and 50% of the southern part comprise of this vegetation type (refer to Figure 12 which indicates the Kathu Bushveld Vegetation Type in light brown).

This vegetation type is mainly distributed in Northern Cape Province. It occurs on plains from Kathu and Dibeng in the south, through Hotazel, vicinity of Frylinckspan to the Botswana border roughly between Van Zylsrus and McCarthysrus (Mucina and Rutherford, 2006). The vegetation type is considered as Least threatened with a national conservation target of 16%. This vegetation is not conserved in statutory conservation areas. More than 1% is already transformed, including the iron ore mining locality at Sishen, one of the biggest opencast mines in the world (Mucina and Rutherford, 2006).

Kathu Bushveld comprises medium to tall tree savanna, mostly consisting of *Acacia erioloba* and *Boscia albitrunca*. The shrub layer is dominated by *Acacia mellifera*,

Diospyros lycioides and *Lycium hirsutum*, while the field layer is noticeably variable in cover (Mucina & Rutherford, 2006).

The following are important taxa is found in the Kathu Bushveld vegetation type, as per Mucina & Rutherford (2006):

Trees: *Vachellia erioloba*, *V. haematoxylon*, *Acacia erioloba*, *Acacia mellifera*, *Terminalia sericea* and *Boscia albitrunca*

Shrubs: *Diospyros lycioides*, *Dichrostachys cinerea*, *Grewia flava*, *Gymnosporia buxifolia*, *Rhigozum brevispinosum*, *Aptosimum decumbens*, *Grewia retinervis*, *Nolletia arenosa*, *Sida cordifolia* and *Tragia dioica*.

Grasses: *Aristida meridionalis*, *Brachiaria nigropedata*, *Centropodia glauca*, *Eragrostis lehmanniana*, *Schmidtia pappophoroides*, *Stipagrostis ciliata*, *Aristida congesta*, *Eragrostis biflora*, *Eragrostis chloromelas*, *Eragrostis heteromera*, *Eragrostis pallens*, *Melinis repens*, *Schmidtia kalahariensis*, *Stipagrostis uniplumis* and *Tragus berteronianus*.

Herbs: *Acrotome inflata*, *Erlangea misera*, *Gisekia africana*, *Heliotropium ciliatum*, *Hermbsaetdia fleckii*, *Hermbsaetdia odorata*, *Limeum fenestratum*, *Limeum viscosum*, *Leonotis platycarpa*, *Senna italica* and *Tribulus terrestris*.

12.5.3 Koranna-Langeberg Mountain (SVk15)

A section of the western part of the southern portion of the application area consists of the Koranna-Langeberg Mountain vegetation type (refer to Figure 12 which indicates the Koranna-Langeberg Mountain Type in yellow).

This vegetation type is restricted to Northern Cape Province. From the Tswalu Kalahari Reserve at the northern tip of the Korannaberg southwards in the form of multiple ridges to the Langeberg west of Olifantshoek and southwards along the Langeberg and some parallel ridges, to ridges in the vicinity of Volop. Also, some ridges to the west of the Langeberg (Mucina and Rutherford, 2006).

This vegetation type is considered as Least threatened with a national conservation target of 16%. This vegetation is not conserved in statutory conservation areas but partly conserved in private reserves such as the Tswalu Kalahari Reserve. Virtually none of the area is transformed (Mucina and Rutherford, 2006).

The following are important taxa are found in the Koranna-Langeberg Mountain vegetation type, as per Mucina & Rutherford (2006):

Important Taxa:

Small Trees: *Acacia mellifera* subsp. *Detinens* (d), *Boscia albitrunca*, *Ficus cordata*, *Maytenus undata*.

Tall Shrubs: *Ehretia rigida* subsp. *rigida*, *Euclea undulata*, *Grewia flava*, *Hibiscus micranthus*, *Rhigozum obovatum*, *Rhus burchellii*, *Tarchonanthus camphoratus*, *Tephrosia longipes*. Low Shrubs: *Croton gratissimus* (d), *Artemisia afra*, *Felicia muricata*, *Indigofera polioties*, *Jamesbrittenia albiflora*, *Leucas capensis*, *Lophiocarpus polystachyus*, *Melhania prostrata*, *Nolletia arenosa*, *Pegolettia retrofracta*, *Psiadia punctulata*.

Succulent Shrubs: *Aloe hereroensis* var. *hereroensis*, *Euphorbia avasmontana*, *E. rectirama*. Semiparasitic

Shrub: *Thesium hystrix*.

Woody Climber: *Putterlickia pyracantha*.

Woody Succulent Climber: *Sarcostemma viminale* (d). Graminoids: *Aristida diffusa* (d), *Eragrostis curvula* (d), *Brachiaria nigropedata*, *Cenchrus ciliaris*, *Digitaria eriantha* subsp. *eriantha*, *Heteropogon contortus*, *Stipagrostis uniplumis*.

Herb: *Ceratotheca triloba*.

Geophytic Herbs: *Boophone disticha*, *Cheilanthes hirta*, *Pellaea calomelanos*, *Sansevieria aethiopica*.

12.5.4 Olifantshoek Plains Thornveld (SVk 13)

A section of the western part of the southern portion of the application area consists of the Olifantshoek Plains Thornveld vegetation type (refer to Figure 12 which indicates the Olifantshoek Plains Thornveld Type in dark brown).

This vegetation type is mainly distributed in Northern Cape Province. It occurs on plains including most of the pediment areas of the Korannaberg, Langeberg and Asbestos Mountains as well as some ridges to the west of the Langeberg. From the vicinity of Sonstraal in the north, past Olifantshoek to areas north of Niekerkshoop between Volop and Griekwastad in the south. Also, from Griekwastad northwards to the flats west of the Lime Acres area (Mucina and Rutherford, 2006).

This vegetation type is considered as Least threatened with a national conservation target of 16%. Only 0.3% is statutorily conserved in the Witsand Nature Reserve. Only about 1% of the area has been transformed and erosion is very low (Mucina and Rutherford, 2006).

The following are important taxa are found in the Olifantshoek Plains Thornveld vegetation type, as per Mucina & Rutherford (2006):

Important Taxa: *Acacia erioloba*, *Boscia albitrunca*, *Acacia mellifera* subsp. *detinens*, *Terminalia sericea*, *Lessertia frutescens*, *Lycium hirsutum*, *Rhigozum obovatum*, *Rhus tridactyla*, *Tarchonanthus camphoratus*, *Aptosimum procumbens*, *Grewia retinervis*, *Hoffmannseggia burchellii*, *Lycium pilifolium*, *Solanum tomentosum*, *Lycium cinereum*, *Talinum caffrum*. Graminoids: *Schmidtia pappophoroides*, *Stipagrostis uniplumis*, *Aristida congesta*, *Brachiaria serrata*, *Digitaria eriantha* subsp. *eriantha*, *Melinis repens*, *Acanthosicyos naudinianus*, *Gisekia pharnacioides*, *Hermannia tomentosa*, *Ipomoea magnusiana*, *Oxygonum delagoense*, *Pollichia campestris*, *Tephrosia purpurea* subsp. *Leptostachya*, *Piaranthus decipiens*. Geoxylic Suffrutex: *Elephantorrhiza elephantina*.

12.5.5 Protected tree species

In terms of the National Forests Act (Act No. 84 of 1998), certain tree species can be identified and declared as protected. Protected trees occurring in the study area are *Boscia albitrunca* (Shepherd's tree) and *Vachellia* (*Acacia*) *erioloba* (Camel thorn).

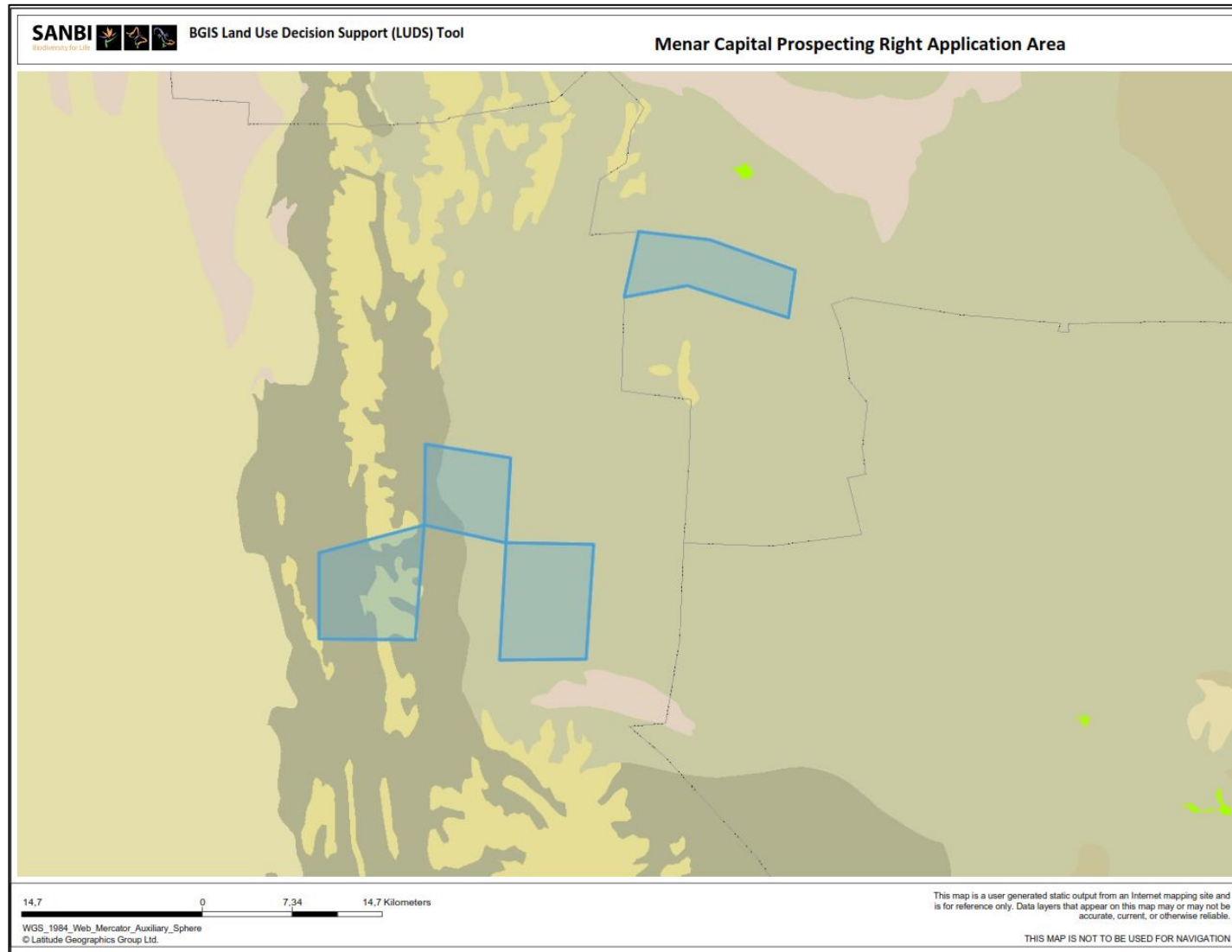


Figure 12: Vegetation Map

12.5.6 Threatened Terrestrial Ecosystems

According to the data sourced from SANBI, no terrestrial threatened ecosystems were recorded in the application area. The nearest terrestrial threatened ecosystem is the Mafikeng Bushveld ecosystem, which is situated approximately 150km to the east of the application area.

12.5.7 Northern Cape Conservation Plan

The Northern Cape Critical Biodiversity Areas (CBA) map (Oosthuysen and Holness, 2016) identifies biodiversity priority areas, called CBAs and Ecological Support Areas (ESAs), which, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species to ensure the long-term ecological functioning of the landscape as a whole. The identification of CBAs and ESAs for the Northern Cape was undertaken using a Systematic Conservation Planning approach. The CBA maps indicate the most efficient selection and classification of land portions requiring safeguarding in order to maintain ecosystem functioning and meet national biodiversity objectives.

Priorities from existing plans such as the Namakwa District Biodiversity Plan, the Succulent Karoo Ecosystem Plan, National Estuary Priorities, and the National Freshwater Ecosystem Priority Areas were incorporated.

The application area contains Ecological Support Areas (ESA) regions and Other Natural Areas. The ESA areas are found along the hills located in the west of the southern part, on the Farm Gnoolooma 416. Refer to Figure 13 below for the Northern Cape CBA Plan indicating the different biodiversity areas around the application area.

12.5.8 Protected Areas

Tswalu is a designated protected area in term of the NEMPAA. Tswalu is classified as a Nature Reserve and no prospecting activities can occur within the 5km buffer around the nature reserve without approval from the Minister of Environmental Affairs. According to the National Environmental Management: Protected Areas Act (Act 57 of 2003), the Minister must maintain a register called the Register of Protected Areas. A Register of Protected Areas was therefore developed for reporting and mapping purposes of protected area and conservation area in South Africa.

The northern boundary of the Farm Plumstead 418 is located approximately 7km south east of Tswalu according to data obtained from the Register of Protected Areas Map Service (Refer to Figure 14 below).

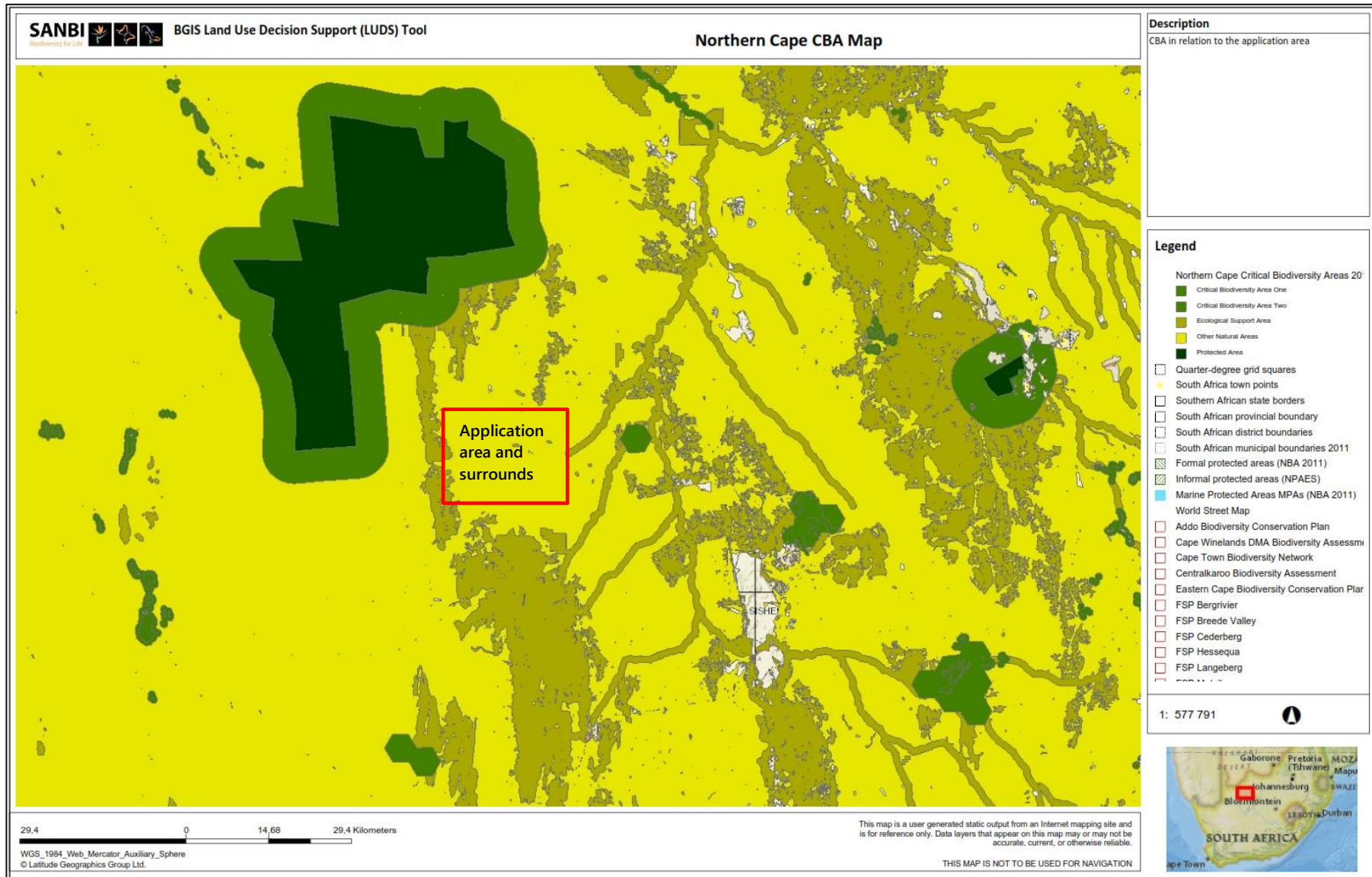


Figure 13: Northern Cape CBA Map indicating the biodiversity areas in and around the application area (red square)

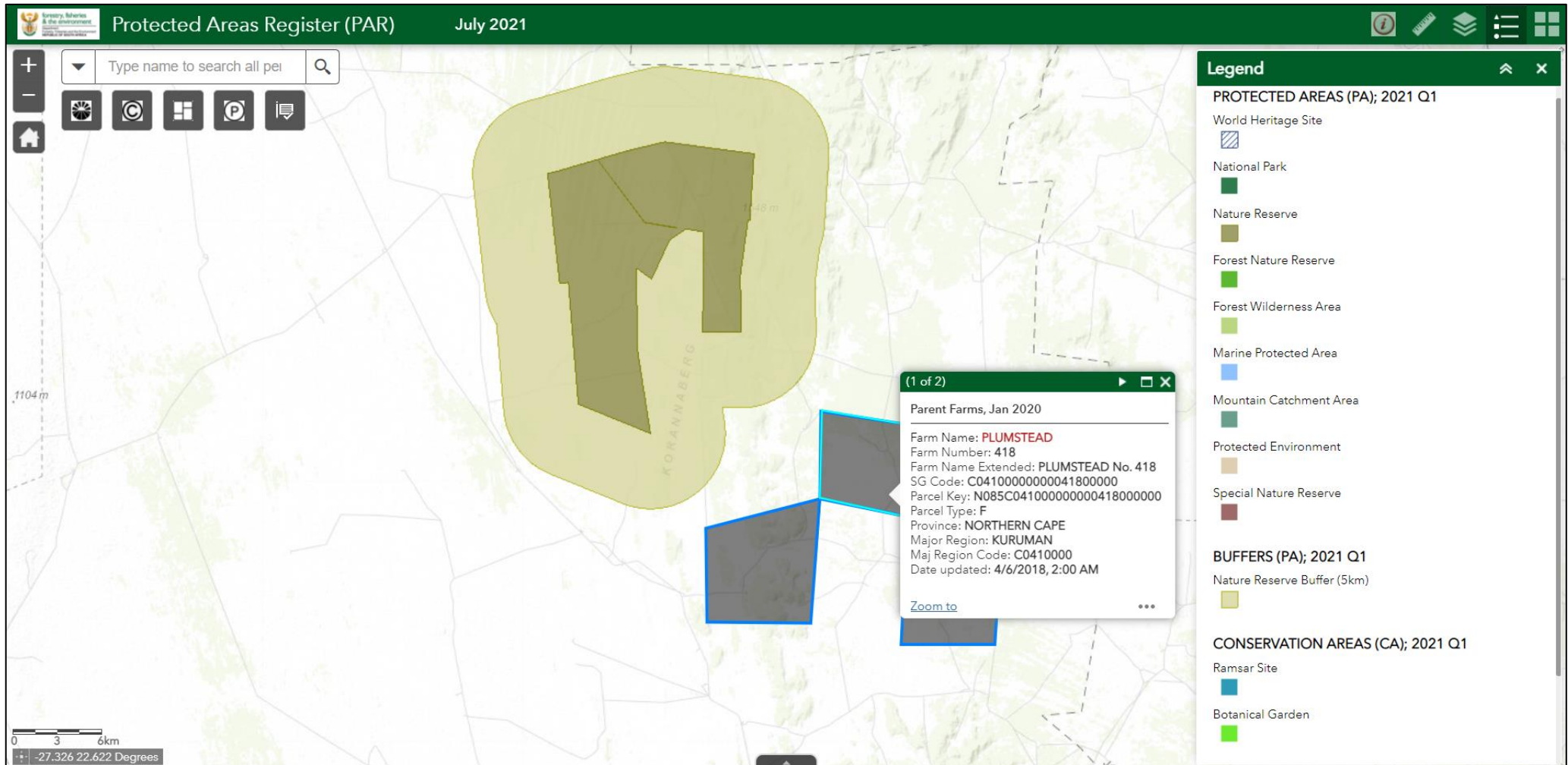


Figure 14: Tswalu and 5km buffer in relation to the southern part of the application area

12.5.9 Ecological Corridors

According to the Northern Cape Department of Forestry, Fisheries & Environment (DFFE) developmental pressures within the Kathu Bushveld vegetation type is reaching concerning levels from an environmental perspective. As a result of the destructive impacts on the Kathu Bushveld (black outline), a corridor linking Tswalu, Glen Lyon and Witsand Nature Reserves with the Langeberg mountain range (red outline), has been identified for potential future offset receiving areas in order safeguard long-term functionality of the ecosystem. Refer to Figure 15 below.

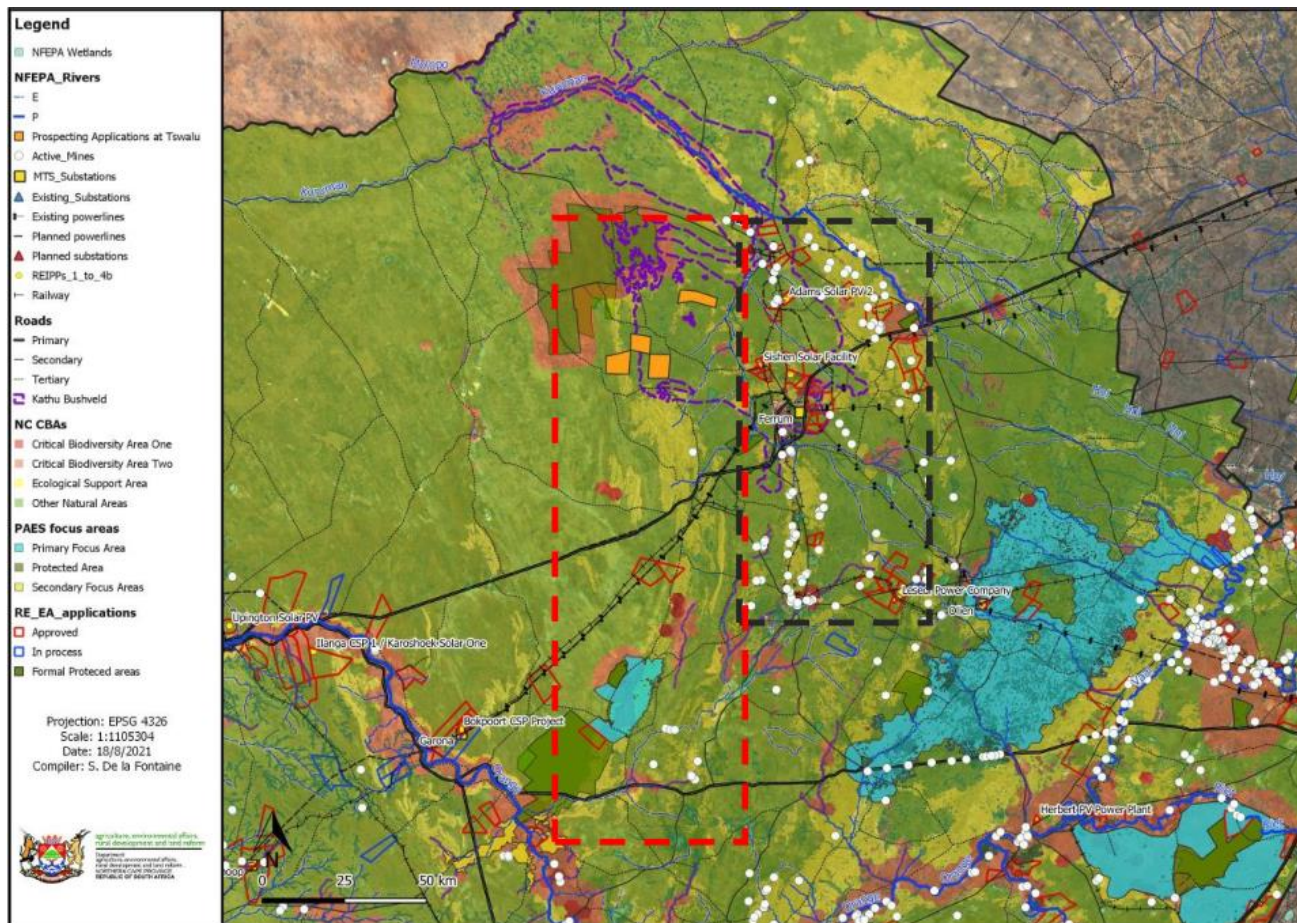


Figure 15: Corridor linking Tswalu, Glen Lyon and Witsand Nature Reserves with the Langeberg mountain range (red outline), identified for potential future offset receiving areas

12.6 Fauna

12.6.1 Mammals

The mammalian community found in and around the application area is likely to be of moderate diversity. Species that could be found in the study area include:

Table 9: List of Mammals Species

Species	Scientific Name
INSECTIVORES	
Hedgehog, South African	<i>Atelerix frontalis</i>
Musk Shrew, Lesser Red	<i>Crocidura hirta</i>
ELEPHANT-SHREWS / SENGIS	
Elephant-Shrew, Bushveld	<i>Elephantulus intufi</i>
Elephant-Shrew, Eastern Rock	<i>Elephantulus myurus</i>
Elephant-Shrew, Western Rock	<i>Elephantulus rupestris</i>
BATS	
Bat, Angolan Wing-gland	<i>Cistugo seabrae</i>
Bat, Cape Serotine	<i>Neoromicia capensis</i>
Bat, Common Slit-faced	<i>Nycteris thebaica</i>
Bat, Darling's Horseshoe	<i>Rhinolophus darlingi</i>
Bat, Dent's Horseshoe	<i>Rhinolophus denti</i>
Bat, Egyptian Free-tailed	<i>Tadarida aegyptiaca</i>
Bat, Flat-headed Free-tail	<i>Sauromys petrophilus</i>
Bat, Natal Long-fingered	<i>Miniopterus natalensis</i>
Bat, Straw-coloured fruit	<i>Eidolon helvum</i>
Pipistrelle, Rusty	<i>Pipistrellus rusticus</i>
Pipistrelle, Rüppell's	<i>Pipistrellus rueppellii</i>
PRIMATES	
Baboon, Chacma	<i>Papio hamadryas</i>
Monkey, Vervet	<i>Cercopithecus pygerythrus</i>
HYRAX	
Hyrax, Rock	<i>Procavia capensis</i>
HARES & RABBITS	
Hare, Cape	<i>Lepus capensis</i>
Hare, Scrub	<i>Lepus saxatilis</i>
Rabbit, Smith's Red Rock	<i>Pronolagus rupestris</i>
RODENTS	
Dormouse, Woodland	<i>Graphiurus murinus</i>
Dormouse, Rock	<i>Graphiurus platyops</i>
Gerbil, Bushveld	<i>Gerbilliscus leucogaster</i>
Gerbil, Hairy-footed	<i>Gerbillurus paeba</i>
Gerbil, Highveld	<i>Gerbilliscus brantsii</i>
Gerbil, Cape Short-tailed	<i>Desmodillus auricularis</i>
Mole-rat, Damaraland	<i>Cryptomys damarensis</i>

Species	Scientific Name
Mouse, Desert Pygmy	<i>Mus indutus</i>
Mouse, Gerbil	<i>Malacothrix typica</i>
Mouse, Grey Climbing	<i>Dendromus melanotis</i>
Mouse, Namaqua Rock	<i>Micaelamys namaquensis</i>
Mouse, Pouched	<i>Saccostomus campestris</i>
Mouse, Four-Striped Grass	<i>Rhabdomys pumilio</i>
Porcupine	<i>Hystrix africaeaustralis</i>
Springhare	<i>Pedetes capensis</i>
Squirrel, Cape Ground	<i>Xerus inauris</i>
Rat, tree	<i>Thallomys paendulcus</i>
CARNIVORES	
Aardwolf	<i>Proteles cristatus</i>
Caracal	<i>Caracal caracal</i>
Cat, Small spotted	<i>Felis nigripes</i>
Cheetah	<i>Acinonyx jubatus</i>
Fox, Bat-Eared	<i>Octocyon megalotis</i>
Fox, Cape	<i>Vulpes chama</i>
Genet, Small-spotted	<i>Genetta genetta</i>
Honey Badger	<i>Mellivora capensis</i>
Hyaena, Brown	<i>Parahyaena brunnea</i>
Hyaena, Spotted	<i>Crocuta crocuta</i>
Jackal, Black-backed	<i>Canis mesomelas</i>
Leopard	<i>Panthera pardus</i>
Mongoose, Cape Grey	<i>Galerella pulverulenta</i>
Mongoose, Slender	<i>Galerella sanguinea</i>
Mongoose, Yellow	<i>Cynictis penicillata</i>
Polecat, Striped	<i>Ictonyx striatus</i>
Suricate (meerkat)	<i>Suricata suricatta</i>
Weasel, African striped	<i>Poecilogale albinucha</i>
Wild Cat, African	<i>Felis silvestris</i>
AARDVARK	
Aardvark	<i>Orycteropus afer</i>
PANGOLIN	
Pangolin, Ground	<i>Smutsia temminckii</i>
EVEN - TOED UNGULATES	
Duiker, Common	<i>Sylvicapra grimmia</i>
Gemsbok	<i>Oryx gazella</i>
Klipspringer	<i>Oreotragus oreotragus</i>
Kudu	<i>Tragelaphus strepsiceros</i>
Reedbuck, Mountain	<i>Redunca fulvorufula</i>
Springbok	<i>Antidorcas marsupialis</i>
Steenbok	<i>Raphicerus campestris</i>
Warthog	<i>Phacochoerus africanus</i>

Five listed terrestrial mammal species potentially occur in the area; these are the Brown Hyaena *brunnea* (Near Threatened), Black-footed Cat *Felis nigripes* (Vulnerable), Leopard *Panthera pardus*, (Vulnerable), Ground Pangolin *Smutsia temminckii* (Vulnerable), South African Hedgehog *Atelerix frontalis* (Vulnerable). The Leopard and Brown Hyaena are not likely to occur in the area on account of the agricultural land-use in the area which is not usually conducive to the persistence of large carnivores. The Black-footed Cat is a secretive species which occurs across most of the Northern Cape and as such is likely to be present in the broad area given that the habitat is seen as broadly suitable. The Hedgehog and Ground Pangolin may also occur in the area at typically low density.

12.6.2 Reptiles

Reptile species that could be found within the study area include:

Table 10: List of Reptile Species

Species	Scientific Name
SNAKES	
Adder, Horned	<i>Bitis caudalis</i>
Adder, Puff	<i>Bitis arietans</i>
Beaked Blind Snake, Delalande's	<i>Rhinotyphlops lalandei</i>
Beaked Blind Snake, Schinz's	<i>Rhinotyphlops schinzi</i>
Beaked Snake, Dwarf	<i>Dipsina multimaculata</i>
Boomslang	<i>Dispholidus typus</i>
Burrowing Asp, Bibron's	<i>Atractaspis bibronii</i>
Bush Snake, Spotted	<i>Philothamnus semivariegatus</i>
Cobra, Cape	<i>Naja nivea</i>
Cobra, Black Spitting	<i>Naja nigricollis woodi</i>
Cobra, Shield	<i>Aspidelaps scutatus scutatus</i>
Egg Eater, Rhombic	<i>Dasypeltis scabra</i>
House Snake, Brown	<i>Lamprophis fuliginosus</i>
Mole Snake	<i>Pseudaspis cana</i>
Python, African Rock	<i>Python natalensis</i>
Quill-snouted snake, Bicoloured	<i>Xenocalamus bicolor bicolor</i>
Sand Snake, Karoo	<i>Psammophis notostictus</i>
Sand Snake, Fork Marked	<i>Psammophis leightoni leightoni</i>
Sand Snake, Kalahari	<i>Psammophis trinasalis</i>
Shovel-snout, Sundevall's	<i>Prosymna sundevalii sundevalii</i>
Tiger Snake, Eastern	<i>Telescopus s. semiannulatus</i>
Tiger Snake, Beetz's	<i>Telescopus beetzii</i>
Wolf Snake	<i>Lycophidion capense</i>
TORTOISES	
Tortoise, Kalahari Tent	<i>Psammobates oculiferus</i>
Tortoise, Leopard	<i>Geochelone pardalis</i>
LIZARDS	
Agama, Ground	<i>Agama aculeate</i>

Species	Scientific Name
Agama, Southern Rock	<i>Agama atra</i>
Chameleon, Flap Necked	<i>Chamaeleo delipis</i>
Gecko, Cape Dwarf	<i>Lygodactylus capensis</i>
Gecko, Common Barking	<i>Ptenopus garrulus</i>
Gecko, Giant Ground	<i>Chondrodactylus angulifer</i>
Gecko, Kalahari Ground	<i>Colopus wahlbergii wahlbergii</i>
Legless Skink, Striped Blind	<i>Typhlosaurus lineatus</i>
Lizard, Bushveld	<i>Heliobolus lugubris</i>
Lizard, Namaqua Sand	<i>Pedioplanis namaquensis</i>
Lizard, Spotted Desert	<i>Meroles suborbitalis</i>
Lizard, Spotted Sand	<i>Pedioplanis lineocellata</i>
Lizard, Spotted Sandveld	<i>Nucras intertexta</i>
Lizard, Western Sandveld	<i>Nucras tessellata</i>
Monitor, Rock	<i>Varanus albigularis</i>
Skink, Cape	<i>Mabuya capensis</i>
Skink, Kalahari Tree	<i>Mabuya spiligaster</i>
Skink, Striped	<i>Mabuya punctatissima</i>
Skink, Variegated	<i>Mabuya variegata punctulata</i>
Skink, Western Rock	<i>Mabuya sulcata</i>
Skink, Western Three Striped	<i>Mabuya occidentalis</i>
Thick-Toed Gecko, Bibron's	<i>Pachydactylus bibronii</i>
Thick-Toed Gecko, Cape	<i>Pachydactylus capensis</i>
Thick-Toed Gecko, Turner's	<i>Pachydactylus turneri</i>
Thick-Toed Gecko, Rough	<i>Pachydactylus rugosus rugosus</i>
Worm Lizard, Dusky Spade Snouted	<i>Monopeltis infuscata</i>
Worm Lizard, Kalahari Spade Snouted	<i>Monopeltis leonhardi</i>
Worm Lizard, Kalahari Round headed	<i>Zygaspis quadrifrons</i>

12.6.3 Amphibians

The site potentially has a moderately diverse frog community for an arid area. There is no natural permanent water or artificial earth dams within the application area that would represent suitable breeding habitat for most of these species. The pans which are present within the site would occasionally contain sufficient water for breeding purposes for those species which do not require permanent water. Given the paucity of permanent water at the site, only those species which are relatively independent of water are likely to occur in the area. Species that could occur within the study area include:

Table 11: List of Amphibian Species

Species	Scientific Name
FROGS & TOADS	
Bullfrog, African	<i>Pyxicephalus edulis</i>
Kassina, Bubbling	<i>Kassina senegalensis</i>
Rain Frog, Bushveld	<i>Breviceps adspersus</i>
Sand Frog, Tandy's	<i>Tomopterna tandyi</i>
Sand Frog, Tremolo	<i>Tomopterna cryptotis</i>
Toad, Guttural	<i>Bufo gutturalis</i>
Toad, Western Olive	<i>Bufo garmani</i>

12.6.4 Avifauna

A literature review indicates that there are no Important Bird Areas (IBAs), Coordinated Avifaunal Roadcounts (CAR) routes, or Coordinated Waterbird Counts (CWAC) wetlands in the vicinity of the study area. Species that could occur within the study area include:

Table 12: List of Avifauna Species

Species	Scientific Name
BIRDS	
Avocet, Pied	<i>Recurvirostra avosetta</i>
Babbler, Southern Pied	<i>Turdoides bicolor</i>
Barbet, Acacia Pied	<i>Tricholaema leucomelas</i>
Barbet, Crested	<i>Trachyphonus vaillantii</i>
Bateleur	<i>Terathopius ecaudatus</i>
Batis, Pririt	<i>Batis pririt</i>
Bee-eater, European	<i>Merops apiaster</i>
Bee-eater, Swallow-tailed	<i>Merops hirundineus</i>
Bee-eater, White-fronted	<i>Merops bullockoides</i>
Bishop, Southern Red	<i>Euplectes orix</i>
Bitten, Dwarf	<i>Ixobrychus sturmii</i>
Bokmakierie	<i>Telophorus zeylonus</i>
Brubru	<i>Nilaus afer</i>
Bulbul, African Red-eyed	<i>Pycnonotus nigricans</i>
Buffalo-Weaver, Red-billed	<i>Bubalornis niger</i>
Bunting, Cape	<i>Emberiza capensis</i>
Bunting, Cinnamon-breasted	<i>Emberiza tahapisi</i>
Bunting, Golden-breasted	<i>Emberiza flaviventris</i>
Bunting, Lark-like	<i>Emberiza impetuani</i>
Bustard, Kori	<i>Ardeotis kori</i>
Bustard, Ludwig's	<i>Neotis ludwigii</i>
Buttonquail, Kurrichane	<i>Turnix sylvaticus</i>
Buzzard, Jackal	<i>Buteo rufofuscus</i>
Buzzard, Steppe	<i>Buteo vulpinus</i>
Canary, Black-headed	<i>Serinus alario</i>

Species	Scientific Name
Canary, Black-throated	<i>Crithagra atrogularis</i>
Canary, White-throated	<i>Crithagra albogularis</i>
Canary, Yellow	<i>Crithagra flaviventris</i>
Chat, Ant-eating	<i>Myrmecocichla formicivora</i>
Chat, Familiar	<i>Cercomela familiaris</i>
Chat, Tractrac	<i>Cercomela tractrac</i>
Cisticola, Desert	<i>Cisticola aridulus</i>
Cisticola, Rattling	<i>Cisticola chiniana</i>
Cisticola, Tinkling	<i>Cisticola rufilata</i>
Cisticola, Grey-backed	<i>Cisticola subruficapilla</i>
Cliff-Swallow, South African	<i>Hirundo spilodera</i>
Coot, Red-knobbed	<i>Fulica cristata</i>
Cormorant, Reed	<i>Phalacrocorax africanus</i>
Cormorant, White-breasted	<i>Phalacrocorax lucidus</i>
Coucal, Burchell's	<i>Centropus burchellii</i>
Courser, Bronze-winged	<i>Cursorius chalcopterus</i>
Courser, Burchell's	<i>Cursorius rufus</i>
Courser, Double-banded	<i>Cursorius africanus</i>
Courser, Temminck's	<i>Cursorius temminckii</i>
Crake, Spotted	<i>Porzana porzana</i>
Crake, Corn	<i>Crex crex</i>
Crombec, Long-billed	<i>Sylvietta rufescens</i>
Crow, Cape	<i>Corvus capensis</i>
Crow, Pied	<i>Corvus albus</i>
Cuckoo, African	<i>Cuculus gularis</i>
Cuckoo, Black	<i>Cuculus clamosus</i>
Cuckoo, Diederik	<i>Chrysococcyx capris</i>
Cuckoo, Great Spotted	<i>Clamator glandarius</i>
Cuckoo, Jacobin	<i>Clamator jacobinus</i>
Cuckoo, Klaas's	<i>Chrysococcyx klaas</i>
Cuckoo, Red-chested	<i>Cuculus solitarius</i>
Darter, African	<i>Anhinga rufa</i>
Dove, Cape Turtle	<i>Streptopelia capicola</i>
Dove, Laughing	<i>Streptopelia senegalensis</i>
Dove, Namaqua	<i>Oena capensis</i>
Dove, Red-eyed	<i>Streptopelia semitorquata</i>
Dove, Rock (Feral Pigeon)	<i>Columba livia</i>
Drongo, Fork-tailed	<i>Dicrurus adsimilis</i>
Duck, Comb	<i>Sarkidiornis melanotos</i>
Duck, Maccoa	<i>Oxyura maccoa</i>
Duck, White-faced	<i>Dendrocygna viduata</i>
Eagle, African Hawk	<i>Aquila spilogaster</i>
Eagle, Booted	<i>Aquila pannatus</i>

Species	Scientific Name
Eagle, Martial	<i>Polemaetus bellicosus</i>
Eagle, Tawny	<i>Aquila rapax</i>
Eagle, Verreaux's	<i>Aquila vereauxii</i>
Eagle-Owl, Spotted	<i>Bubo africanus</i>
Eagle-Owl, Verreaux's	<i>Bubo lacteus</i>
Egret, Cattle	<i>Bubulcus ibis</i>
Egret, Great white	<i>Egretta alba</i>
Egret, Little	<i>Egretta garzetta</i>
Eremomela, Yellowbellied	<i>Eremomela icteropygialis</i>
Falcon, Amur	<i>Falco amurensis</i>
Falcon, Lanner	<i>Falco biarmicus</i>
Falcon, Pygmy	<i>Polihierax semitorquatus</i>
Falcon, Red-footed	<i>Falco vespertinus</i>
Falcon, Red-necked	<i>Falco chicquera</i>
Finch, Red-headed	<i>Amadina erythrocephala</i>
Finch, Scaly-feathered	<i>Sporopipes squamifrons</i>
Firefinch, Jameson's	<i>Lagonosticta rhodopareia</i>
Firefinch, Red-billed	<i>Lagonosticta senegala</i>
Fiscal, Common	<i>Lanius collaris</i>
Fish-Eagle, African	<i>Haliaeetus vocifer</i>
Flamingo, Greater	<i>Phoenicopterus ruber</i>
Flamingo, Lesser	<i>Phoenicopterus minor</i>
Flycatcher, Chat	<i>Bradornis infuscatus</i>
Flycatcher, Fairy	<i>Stenostira scita</i>
Flycatcher, Fiscal	<i>Sigelus silens</i>
Flycatcher, Marico	<i>Bradornis mariquensis</i>
Flycatcher, Spotted	<i>Muscicapa striata</i>
Francolin, Orange River	<i>Scleroptila levaillantoides</i>
Go-away Bird, Grey	<i>Corythaixoides concolor</i>
Goose, Egyptian	<i>Alopochen aegyptiaca</i>
Goose, Spurwinged	<i>Plactropterus gambensis</i>
Goshawk, Gabar	<i>Melierax gabar</i>
Goshawk, Southern Pale Chanting	<i>Melierax canorus</i>
Grebe, Little	<i>Tachybaptus ruficollis</i>
Greenshank, Common	<i>Tringa nebularia</i>
Guineafowl, Helmeted	<i>Numida meleagris</i>
Gull, Sabine's	<i>Larus sabini</i>
Hamerkop	<i>Scopus umbretta</i>
Harrier, Black	<i>Circus maurus</i>
Harrier, Montague's	<i>Circus pygargus</i>
Harrier-Hawk, African	<i>Polyboroides typus</i>
Heron, Black-headed	<i>Egretta melanocephala</i>
Heron, Green-backed	<i>Butorides stiata</i>

Species	Scientific Name
Heron, Grey	<i>Ardea cinerea</i>
Heron, Purple	<i>Ardea purpurea</i>
Heron, Squacco	<i>Ardeola ralloides</i>
Hobby, Eurasian	<i>Falco subbuteo</i>
Honeyguide, Greater	<i>Indicator indicator</i>
Honeyguide, Lesser	<i>Indicator minor</i>
Hoopoe, African	<i>Upupa africana</i>
Hornbill, African Grey	<i>Tockus nasutus</i>
Hornbill, Southern Yellow-billed	<i>Tockus leucomelas</i>
House-Martin, Common	<i>Delichon urbicum</i>
Ibis, Glossy	<i>Plegadis falcinellus</i>
Ibis, Hageda	<i>Bostrychia hagedash</i>
Jacana, African	<i>Actophilornis africanus</i>
Kestrel, Greater	<i>Falco rupicolodes</i>
Kestrel, Lesser	<i>Falco naumanni</i>
Kestrel, Rock	<i>Falco rupicolus</i>
Kingfisher, Brown-hooded	<i>Halcyon albiventris</i>
Kingfisher, Giant	<i>Megaceryle maxima</i>
Kingfisher, Grey-headed	<i>Halcyon leucocephala</i>
Kingfisher, Malachite	<i>Alcedo cristata</i>
Kingfisher, Pied	<i>Ceryle rudis</i>
Kingfisher, Striped	<i>Halcyon chelicut</i>
Kite, Black-shouldered	<i>Elanus caeruleus</i>
Kite, Black	<i>Milvus migrans</i>
Korhaan, Northern Black	<i>Afrotis afraoides</i>
Korhaan, Red-crested	<i>Lophotis ruficrista</i>
Lapwing, Blacksmith	<i>Vanellus armatus</i>
Lapwing, Crowned	<i>Vanellus coronatus</i>
Lark, Eastern Clapper	<i>Mirafra fasciolata</i>
Lark, Fawn-coloured	<i>Calendulauda africanoides</i>
Lark, Karoo Long-billed	<i>Certhilauda subcoronata</i>
Lark, Monotonous	<i>Mirafra passerina</i>
Lark, Pink-Billed	<i>Spizocorys conirostris</i>
Lark, Red-Capped	<i>Calandrella cinerea</i>
Lark, Sabota	<i>Calendulauda sabota</i>
Lark, Spike-heeled	<i>Chersomanes albofasciata</i>
Lark, Stark's	<i>Spizocorys starki</i>
Mannikin, Magpie	<i>Spermestes fringilloides</i>
Martin, Brown-throated	<i>Riparia paludicola</i>
Martin, Rock	<i>Hirundo fuligula</i>
Masked-Weaver, Southern	<i>Ploceus velatus</i>
Moorhen, Lesser	<i>Gallinula angulata</i>
Mousebird, Red-faced	<i>Urocolius indicus</i>

Species	Scientific Name
Mousebird, White-backed	<i>Colius colius</i>
Neddicky	<i>Cisticola fulvicapilla</i>
Night-heron, Black-crowned	<i>Nycticorax nycticorax</i>
Nightjar, European	<i>Caprimulgus europaeus</i>
Nightjar, Rufous-cheeked	<i>Caprimulgus rufigena</i>
Openbill, African	<i>Anastomus lamelligerus</i>
Oriole, Eurasian Golden	<i>Oriolus oriolus</i>
Ostrich	<i>Struthio camelus</i>
Owl, Barn	<i>Tyto alba</i>
Owl, Marsh	<i>Asio Capensis</i>
Owlet, Pearl-spotted	<i>Glaucidium perlatum</i>
Oxpecker, Red-billed	<i>Buphagus erythrorhynchus</i>
Oxpecker, Yellow-billed	<i>Buphagus africanus</i>
Painted-snipe, Greater	<i>Rostratula benghalensis</i>
Palm-Swift, African	<i>Cypsiurus parvus</i>
Paradise-Flycatcher, African	<i>Terpsiphone viridis</i>
Paradise-Whydah, Long-tailed	<i>Vidua paradisaea</i>
Pelican, Great White	<i>Pelecanus onocrotalus</i>
Phalarope, Red	<i>Phalaropus fulicarius</i>
Pigeon, Speckled	<i>Columba guinea</i>
Pipit, African	<i>Anthus cinnamomeus</i>
Pipit, African Rock	<i>Anthus crenatus</i>
Pipit, Buffy	<i>Anthus vaalensis</i>
Pipit, Long-billed	<i>Anthus similis</i>
Pipit, Plain-backed	<i>Anthus leucophrys</i>
Plover, Caspian	<i>Charadrius asiaticus</i>
Plover, Three-banded	<i>Charadrius tricollaris</i>
Pochard, Southern	<i>Netta erythrophthalma</i>
Prinia, Black-chested	<i>Prinia flavicans</i>
Prinia, Tawny-flanked	<i>Prinia sunflava</i>
Pytilia, Green-winged	<i>Pytilia melba</i>
Quail, Common	<i>Coturnix coturnix</i>
Quailfinch, African	<i>Ortygospiza atricollis</i>
Quelea, Red-billed	<i>Quelea quelea</i>
Rock-Thrush, Short-toed	<i>Monticola brevipes</i>
Roller, European	<i>Coracias garrulus</i>
Roller, Lilac-breasted	<i>Coracias caudatus</i>
Roller, Purple	<i>Coracias naevius</i>
Ruff	<i>Philomachus pugnax</i>
Sanderling	<i>Calidris alba</i>
Sandgrouse, Burchell's	<i>Pterocles burchelli</i>
Sandgrouse, Double-banded	<i>Pterocles bicinctus</i>

Species	Scientific Name
Sandgrouse, Namaqua	<i>Pterocles namaqua</i>
Sandpiper, Common	<i>Actitis hypoleucos</i>
Sandpiper, Curlew	<i>Calidris ferruginea</i>
Sandpiper, Wood	<i>Tringa glareola</i>
Scimitarbill, Common	<i>Rhinopomastus cyanomelas</i>
Secretarybird	<i>Sagittarius serpentarius</i>
Scops-Owl, Southern White-faced	<i>Ptilopsis granti</i>
Scrub-Robin, Kalahari	<i>Cercotrichas paena</i>
Shelduck, South African	<i>Tadorna cana</i>
Shikra	<i>Accipiter badius</i>
Shoveler, Cape	<i>Anas smithii</i>
Shrike, Crimson-breasted	<i>Laniarius atrococcineus</i>
Shrike, Lesser Grey	<i>Lanius minor</i>
Shrike, Red-backed	<i>Lanius collurio</i>
Snake-Eagle, Black-chested	<i>Circaetus pectoralis</i>
Snake-Eagle, Brown	<i>Circaetus cinereus</i>
Sparrow, Cape	<i>Passer melanurus</i>
Sparrow, Great	<i>Passer motitensis</i>
Sparrow, House	<i>Passer domesticus</i>
Sparrow, Southern Grey-headed	<i>Passer diffusus</i>
Sparrowlark, Black-eared	<i>Eremopterix australis</i>
Sparrowlark, Grey-backed	<i>Eremopterix verticalis</i>
Sparrow-Weaver, White-browed	<i>Plocepasser mahali</i>
Spoonbill, African	<i>Platalea alba</i>
Spurfowl, Red-billed	<i>Pternistis adpersus</i>
Starling, Cape Glossy	<i>Lamprotornis nitens</i>
Starling, Pale-winged	<i>Onychognathus naboroupp</i>
Starling, Pied	<i>Spreo bicolor</i>
Starling, Violet-backed	<i>Cinnyricinclus leucogaster</i>
Starling, Wattled	<i>Creatophora cinerea</i>
Stilt, Black-winged	<i>Himantopus himantopus</i>
Stint, Little	<i>Calidris minuta</i>
Stonechat	<i>Saxicola torquatus</i>
Stork, Abdim's	<i>Ciconia abdimii</i>
Stork, Black	<i>Ciconia nigra</i>
Stork, Marabou	<i>Leptoptilos crumeniferus</i>
Stork, Saddle-billed	<i>Ephippiorhynchus senegalesis</i>
Stork, White	<i>Ciconia ciconia</i>
Stork, Yellow-billed	<i>Mycteria ibis</i>
Sunbird, Dusky	<i>Cinnyris fuscus</i>
Sunbird, Marico	<i>Cinnyris mariquensis</i>
Swallow, Barn	<i>Hirundo rustica</i>
Swallow, Greater Striped	<i>Hirundo cucullata</i>

Species	Scientific Name
Swallow, Pearl-breasted	<i>Hirundo dimidiata</i>
Swallow, Red-breasted	<i>Hirundo semirufa</i>
Swallow, White-throated	<i>Hirundo albigularis</i>
Swift, Alpine	<i>Tachymarptis melba</i>
Swift, Bradfield's	<i>Apus bradfieldi</i>
Swift, Common	<i>Apus apus</i>
Swift, Little	<i>Apus affinis</i>
Swift, White-rumped	<i>Apus caffer</i>
Tchagra, Brown-crowned	<i>Tchagra australis</i>
Teal, Cape	<i>Anas capensis</i>
Teal, Red-billed	<i>Anas erythrorhyncha</i>
Thick-knee, Spotted	<i>Burhinus capensis</i>
Thrush, Groundscraper	<i>Psophocichla litsitsirupa</i>
Thrush, Karoo	<i>Turdus smithi</i>
Thrush, Kurrichane	<i>Turdus libonyana</i>
Tit, Ashy	<i>Parus cinerascens</i>
Tit, Cape Penduline	<i>Anthoscopus minutus</i>
Tit-babbler, Chestnut-vented	<i>Parisoma subcaeruleum</i>
Tit-babbler, Layard's	<i>Parisoma layardi</i>
Vulture, Cape	<i>Gyps coprotheres</i>
Vulture, Lappet-faced	<i>Aegypius tracheliotos</i>
Vulture, White-backed	<i>Gyps africanus</i>
Vulture, White-headed	<i>Aegypius occipitalis</i>
Wagtail, Cape	<i>Motacilla capensis</i>
Wagtail, Western Yellow	<i>Motacilla flava</i>
Warbler, Namaqua	<i>Phragmaciasubstriata</i>
Warbler, Rufous-eared	<i>Malcorus pectoralis</i>
Warbler, Willow	<i>Phyllosopus trochilus</i>
Waxbill, Black-faced	<i>Estrilda erythronotos</i>
Waxbill, Common	<i>Estrilda astrild</i>
Waxbill, Violet-eared	<i>Granatina granatina</i>
Weaver, Chestnut	<i>Ploceus rubiginosus</i>
Weaver, Sociable	<i>Philetairus socius</i>
Wheatear, Capped	<i>Oenanthe pileata</i>
Wheatear, Mountain	<i>Oenanthe monticola</i>
Whitethroat, Common	<i>Sylvia communis</i>
White-eye, Orange River	<i>Zosterops pallidus</i>
Whydah, Pin-tailed	<i>Vidua macroura</i>
Whydah, Shaft-tailed	<i>Vidua regia</i>
Wood-Dove, Emerald-spotted	<i>Turtur chalcospilos</i>
Woodpecker, Cardinal	<i>Dendropicos fuscescens</i>
Woodpecker, Golden-tailed	<i>Campethera abingoni</i>
Wren-warbler, Barred	<i>Calamonastes fasciolatus</i>

According to the Southern African Bird Atlas Project 2 (SABAP 2), a list of threatened bird species occurs in the grid cells 2722DA, 2722CB, 2722BC and 2722BD:

Table 13: Red Data Bird species recorded in grid cells which could potentially occur in the study area (Taylor et al. 2015)

Species	Scientific name	Conservation status
Tawny Eagle	<i>Aquila rapax</i>	Endangered
Martial Eagle	<i>Polemaetus bellicosus</i>	Endangered
Kori Bustard	<i>Ardeotis kori</i>	Near Threatened
Ludwig's Bustard	<i>Neotis ludwigii</i>	Endangered
Blue Crane	<i>Anthropoides paradiseus</i>	Near Threatened
African Marsh Harrier	<i>Circus ranivorus</i>	Endangered
Black Harrier	<i>Circus maurus</i>	Endangered
African White-backed Vulture	<i>Gyps africanus</i>	Critically endangered
Lappet-faced vulture	<i>Torgos tracheliotos</i>	Endangered
Lanner Falcon	<i>Falco biarmicus</i>	Vulnerable
Black Stork	<i>Ciconia nigra</i>	Vulnerable
Abdim's Stork	<i>Ciconia abdimii</i>	Near Threatened
Yellow-billed Stork	<i>Mycteria ibis</i>	Endangered
Marabou Stork	<i>Leptoptilos crumenife</i>	Near Threatened
Secretarybird	<i>Sagittarius serpentarius</i>	Vulnerable
Species	Scientific name	Conservation status
Greater Flamingo	<i>Phoenicopterus roseus</i>	Near Threatened
Lesser Flamingo	<i>Phoeniconaias minor</i>	Near Threatened
Chestnut-banded Plover	<i>Charadrius pallidus</i>	Near Threatened
Greater painted snipe	<i>Rostratula benghalensis</i>	Near Threatened
European Roller	<i>Coracias garrulus</i>	Near Threatened
Burchell's Courser	<i>Cursorius rufus</i>	Vulnerable

12.7 Surface Water and Aquatic Ecosystems

The application area is situated in the Lower Vaal Water Management Area Quaternary Sub-catchment D41K of the Molopo Sub Water Management Area. The D41K quaternary Sub-Catchment has a gross total catchment area of 4216 km², with a net MAR of 1.92 Mm³.

The major river within quaternary catchment is the Ga-Mogara River which flows approximately 3.8 km to the east of the Northern Part of the application area. Two tributaries of the Ga-mogara river, the Dooiemansholte and GAA river, flows between 6 and 13km from the Southern Part of the application area.

The Ga-Mogara River is an ephemeral river which forms a tributary to the Kuruman River. The Kuruman River flows west joining the Molopo River approximately 250 km from the confluence of the Ga-Mogara River and Kuruman River. The Molopo River drains in a southerly direction eventually joining the Orange River.

The entire Molopo catchment is classified as endoreic i.e., catchments with large areas which do not contribute to runoff as the watercourses drain to inland pans.

During the rainy season depression wetlands form in and around the application area. It can be seen from Figure 15 that the wetlands inside the application area appear to be small in size and isolated.

The study area itself can clearly be defined as a region with only periodic water flow.



Photo Plate 4: Natural depression filled with water (Photo taken May 2021)

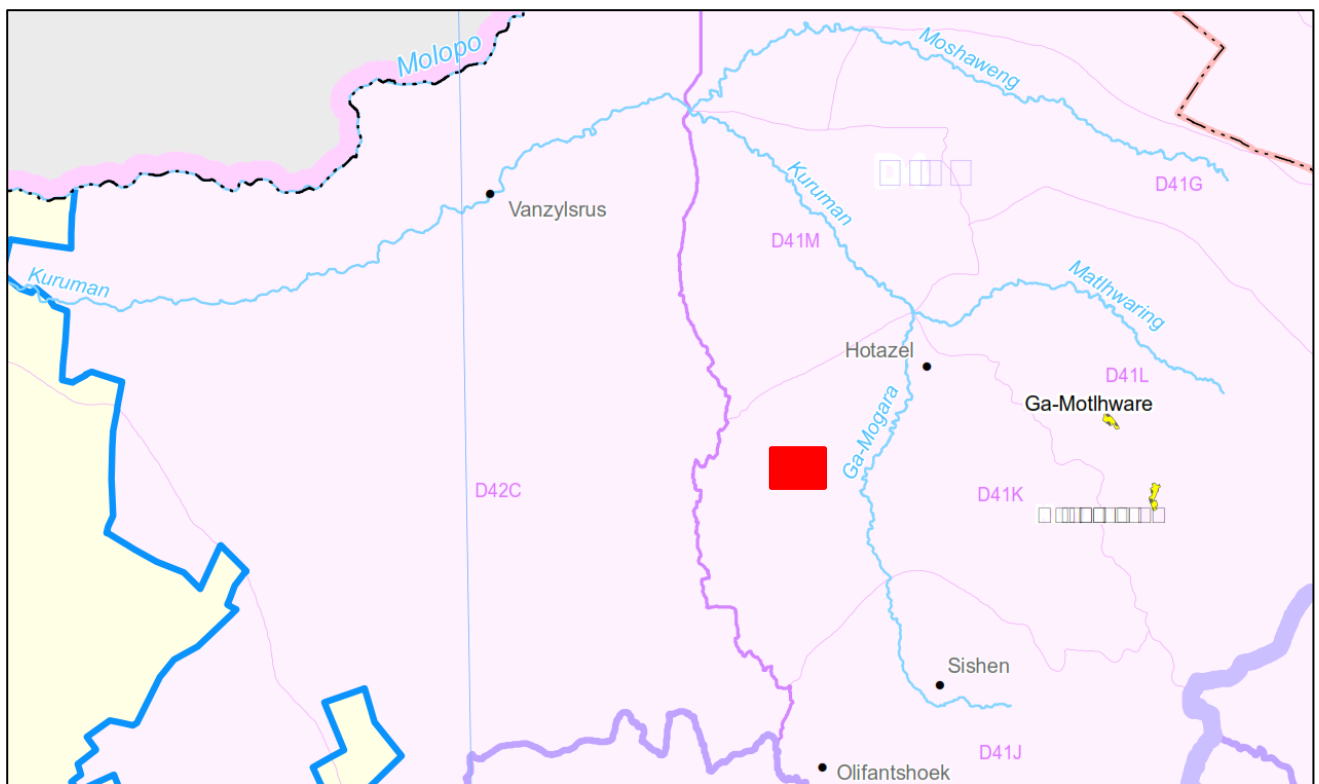


Figure 16: Quaternary catchment map

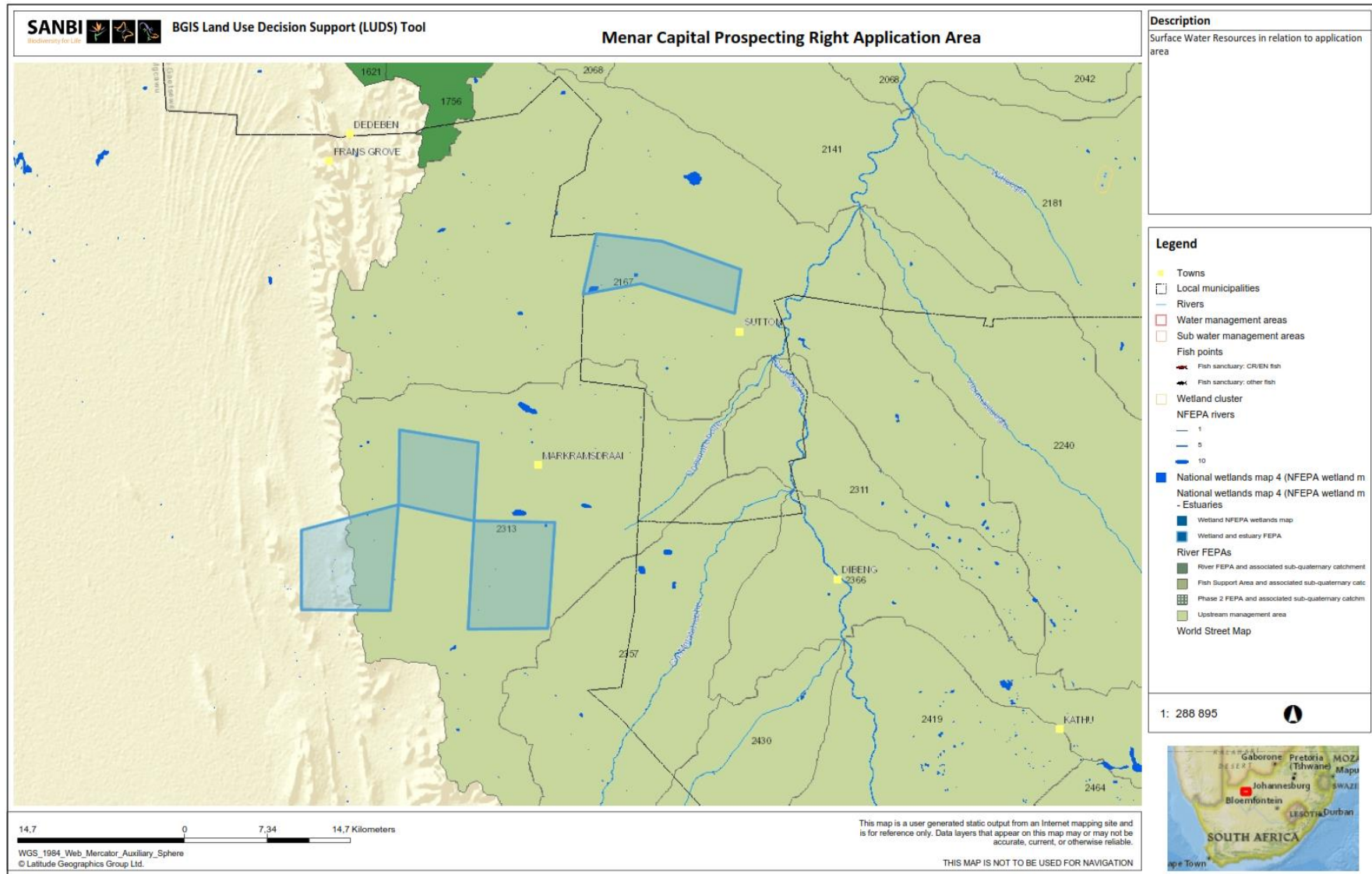


Figure 17: Surface water resources in relation to the application area

12.8 Groundwater

The application area is situated in a very dry/water scarce area and the landowners are reliant on groundwater resources for their farming activities. Two distinct aquifers are present in the area: a shallow and a deep aquifer. These aquifers are described below:

Shallow Aquifer: A shallow unconfined to semi-unconfined aquifer is located at depths between 10 m and 50 m below the surface within material of the Kalahari formation. Water is held in the spaces between soil/sediment particles. The water may rest on an underlying clay-rich formation (perched water table). Groundwater flow within this aquifer is horizontal, however fractures within this aquifer may allow for vertical flow to the deeper aquifer. The shallow aquifer is characterised by a low hydraulic conductivity (1 to 10m/d)

Deep Aquifer: A deep confined fractured aquifer is located within the Dwyka, Mooidraai and Hotazel formations and is located at depths between 70 to 300 m below the surface. The groundwater flow within this aquifer is influenced by the fracture orientations. The deeper aquifer is characterised by a very low hydraulic conductivity (less than 1 m/d), except along well-developed fracture systems.

Based on the DWA Aquifer Classification map (Matoti et al 1999, recompiled 2012), the aquifers underlying the application area are classified as a poor aquifer system. The yields in the deeper aquifer are generally considered low. The definition of a poor aquifer system is a low to negligible yielding aquifer system of moderate to poor water quality. Recharge of these aquifers is generally from rainfall at surface which infiltrates to lower levels and deeper aquifers. Recharge is estimated as 1% to 3% of mean annual rainfall. It is important to note, that there is a lack of connection between the shallow aquifer and the deep aquifer.

Groundwater flow

Groundwater flow directions will be along the surface topographical gradient. In terms of the application area, groundwater flows in an easterly direction towards the Ga-Mogara drainage channel.

Groundwater quality and levels

The regional groundwater levels range from 3.4 m BGL to 150 m BGL, with an average water level of 32.16 m BGL, suggesting that most of the borehole's measure within the upper Kalahari formation (*EIA/EMP Report for Southern Ambition 1549 (Pty) Ltd, Roelina Oosthuizen, Dec 2018*). No water testing was performed at this stage, but groundwater quality is assumed to be good since the landowners use it for domestic and agricultural purposes.

Groundwater use

Groundwater use within the area is limited however where groundwater is utilised this is for domestic purposes and agricultural purposes such as livestock and game watering.

12.9 Air Quality

In the pre-prospecting environment, there are no major sources of air pollution. Fugitive dust emissions may occur as a result of vehicle entrainment of dust from local paved and unpaved roads, wind erosion from open areas and dust generated by agricultural activities. Given that the agriculture in the area is primarily restricted to livestock and game farming, agriculture is not anticipated to contribute significantly to ambient dust rates.

Due to the predominantly rural nature of the study area, the air quality is regarded to be good. Obvious sources of air pollution in the greater region include the following:

- Emissions from surrounding mining operations.
- Urban-related emissions from towns (notably Deben, Kathu, Hotazel and Olifantshoek).
- Tailpipe emissions from vehicles travelling along the main road network between towns.
- Burning of wood for household purposes in areas without electricity.
- Burning of biomass (veld fires).

12.10 Noise

The application area is situated in a rural environment, with typically low levels of noise, dominated by the natural sounds of rustling vegetation, wildlife, and man-influenced sounds such as livestock and farming activities (use of farming equipment). Noise in the greater region emanates primarily from the following sources:

- Mining operations.
- Human settlements.
- Vehicles on the main road network.
- Occasional overflying aircrafts.

12.11 Visual Aesthetics

The visual character of the landscape in and around the application area consists mainly of large private farms, agricultural practices, and mining activities. The visual quality of the area is enhanced by non-perennial rivers, pans, and dunes/hills in the western part of the application area.

The application area has a relatively flat and monotonous topography. Subtle variation in topography is present where dry river canyons cut through the landscape and linear sand dunes/hills bulge above the prevailing vegetation cover. The landscape is perceived as topographically monotonous and homogenous in colour and texture due to the dense vegetation cover stretching from horizon to horizon. The vegetation reaches an average height of approximately three (3) metres on the plains, which results in restricted viewing corridors down roads or other cleared corridors.

12.12 Heritage and cultural resources

The Heritage Screening tool (<https://screening.environment.gov.za/>) shows low to medium significance with locations of high sensitivity towards the east and southeast of the application area with smaller sites to the north and south.

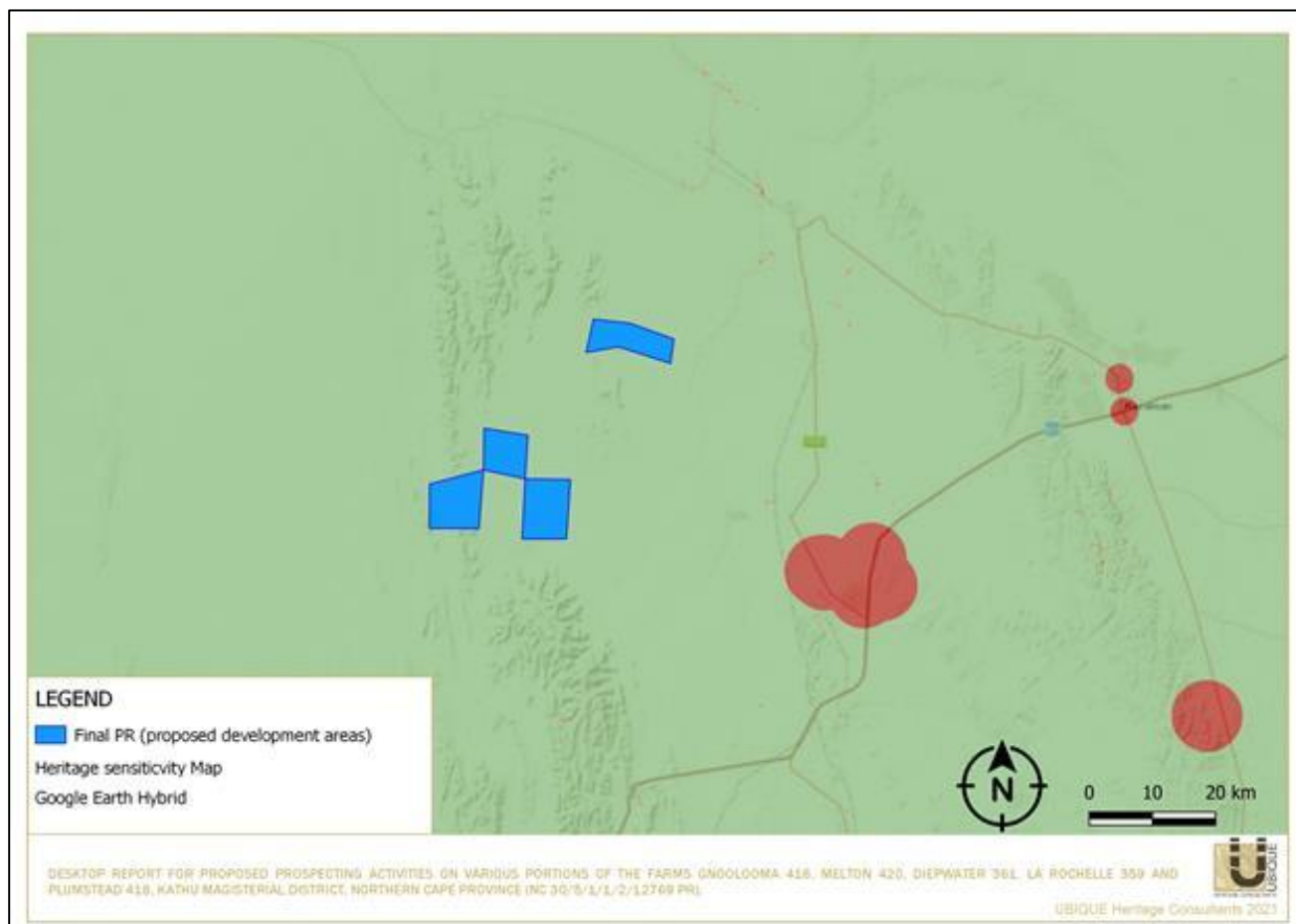


Figure 18: The application area indicated on the Heritage Screening tool

12.12.1 Identified heritage resources

As mentioned UBIQUE Heritage Consultants was appointed as the independent heritage specialists to conduct a cultural heritage & palaeontological desktop assessment as part of the prospecting right application.

The desktop study revealed that no Heritage Assessments had been conducted directly on or adjacent to the application area. However, heritage sites and resources ranging from low to high significance have been documented on the periphery of a 30-50 km radius from the study area. Examples of these sites are provided in Section 6 of the HIA Desktop Study attached as Appendix 8 to this report. These sites provide the Applicant with the data necessary to anticipate the type of sites and probable significance that might accompany any projected heritage resource.

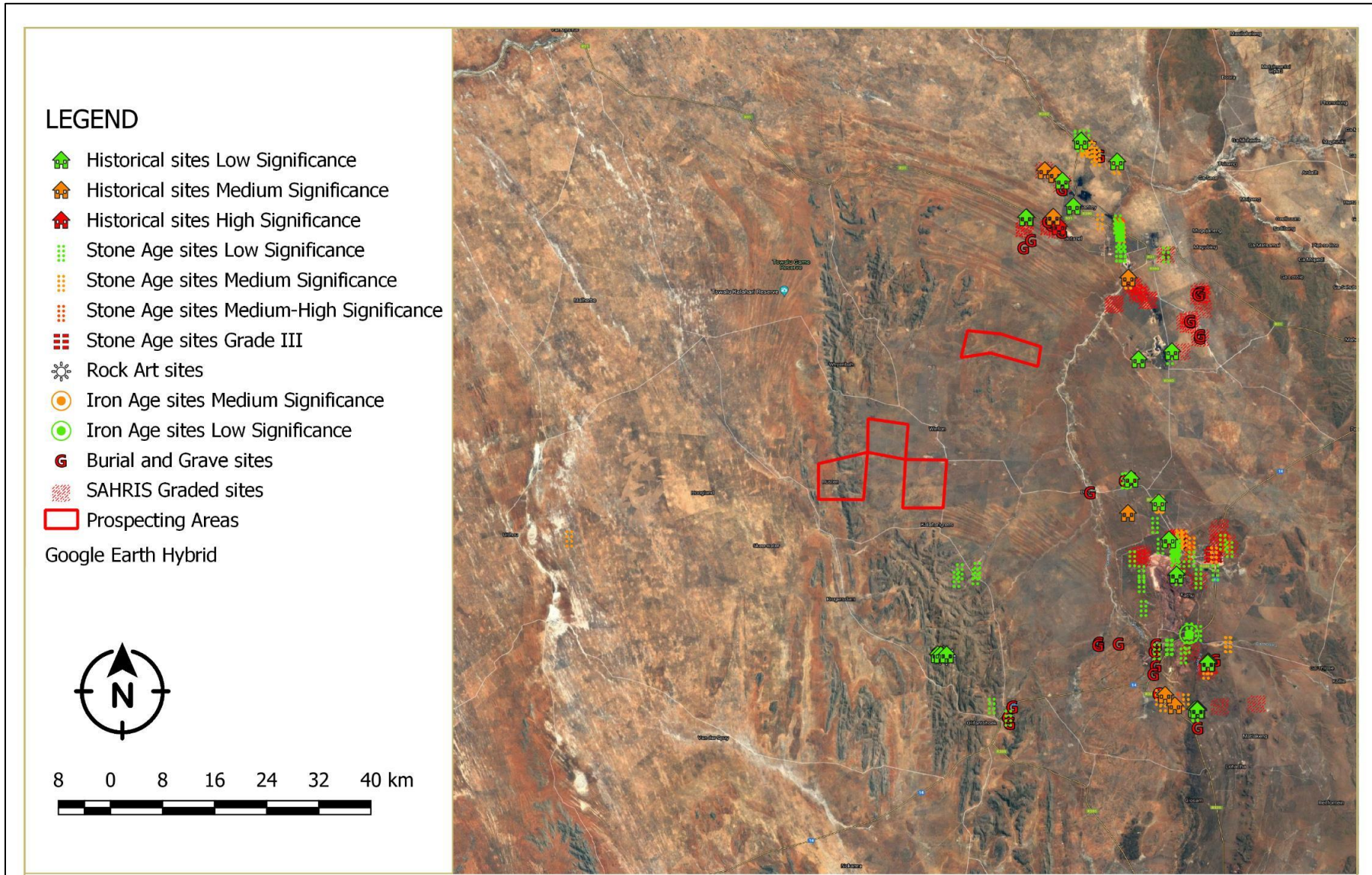


Figure 19: Map composite of heritage resources recorded from previous HIA/AIAs in the area

12.12.1.1 Stone Age

Stone Age sites were recorded in various locations to the north, northeast, and south of the application area, most notably in open-air settings or sediments near rivers or pans. Apart from very significant Stone Age sites towards the northeast, east, and southeast of the development footprint, the majority of the documented lithic material closer to the prospecting properties are of low and medium significance. Furthermore, these sites are predominantly open-air sites with low-density surface scatters. Therefore, the occurrence of lithic material within the development areas are considered highly probable.

12.12.1.2 Rock Art

A couple of rock-art sites have been recorded to the north and southeast of the study area, with only one incidence within the 50 km radius. Rock art, specifically engravings, may be present in open-air rocky outcrop sites, such as the hilly terrain on the farm Gnoolooma 416.

12.12.1.3 Iron Age

No Iron Age sites have been recorded near the development area, which would suggest that the likelihood of such sites being present in the development area is low.

12.12.1.4 Historical period

Archaeological traces of historical features and artefacts attributed to the representation of the regional colonial farming history and colonial settlement can probably be found on all the farms.

12.12.1.5 Graves and burial sites

Graves and informal cemeteries can be expected anywhere in the landscape. Family cemeteries can be anticipated close to farmsteads, while informally marked graves consisting of fieldstone cairns and headstones may be found in the veldt. Ancestral graves on the southwestern part of the RE of the Farm La Rochelle 359 and Gnoolooma 416 Portion 4 close to the current farmstead were pointed out by the landowners. However, no exact coordinates were provided, and more unidentified graves could be present in the application area.

12.12.2 Palaeontological resources

Elize Butler from Banzai Environmental conducted a complete paleontological desktop study for this project (see Appendix 1 of the HIA Desktop Study attached as Appendix 8 to this report).

The application area is underlain by Quaternary aged sediments of the Kalahari Group as well as the underlying Campbell Rand Subgroup (Ghaap Group, Transvaal Supergroup),

The fossil assemblages of the Kalahari are generally high in diversity that occur over a wide range. These fossils represent terrestrial plants and animals with a close resemblance to living forms. Fossil assemblages include bivalves, diatoms, gastropod shells, ostracods, and trace fossils. Late Cenozoic calcrete may comprise of bones, horn corns as well as mammalian teeth. Tortoise remains have also been uncovered as well as trace fossils which includes termite and insect’s burrows and mammalian trackways. Amphibian and crocodile remains have been uncovered where the depositional settings in the past were wetter. Fossils are mostly associated with ancient lakes, pans and river systems.

According to the SAHRIS palaeo sensitivity map (Figure 20) there is a moderate chance of finding fossils in the green area. The general low palaeontological sensitivity of the bedrocks and superficial sediments in the application area, indicates that the proposed prospecting operation will have an overall low impact significance in terms of palaeontological heritage and consequently no further palaeontological heritage studies, groundtruthing and/or specialist mitigation are required pending the discovery of newly discovered fossils.

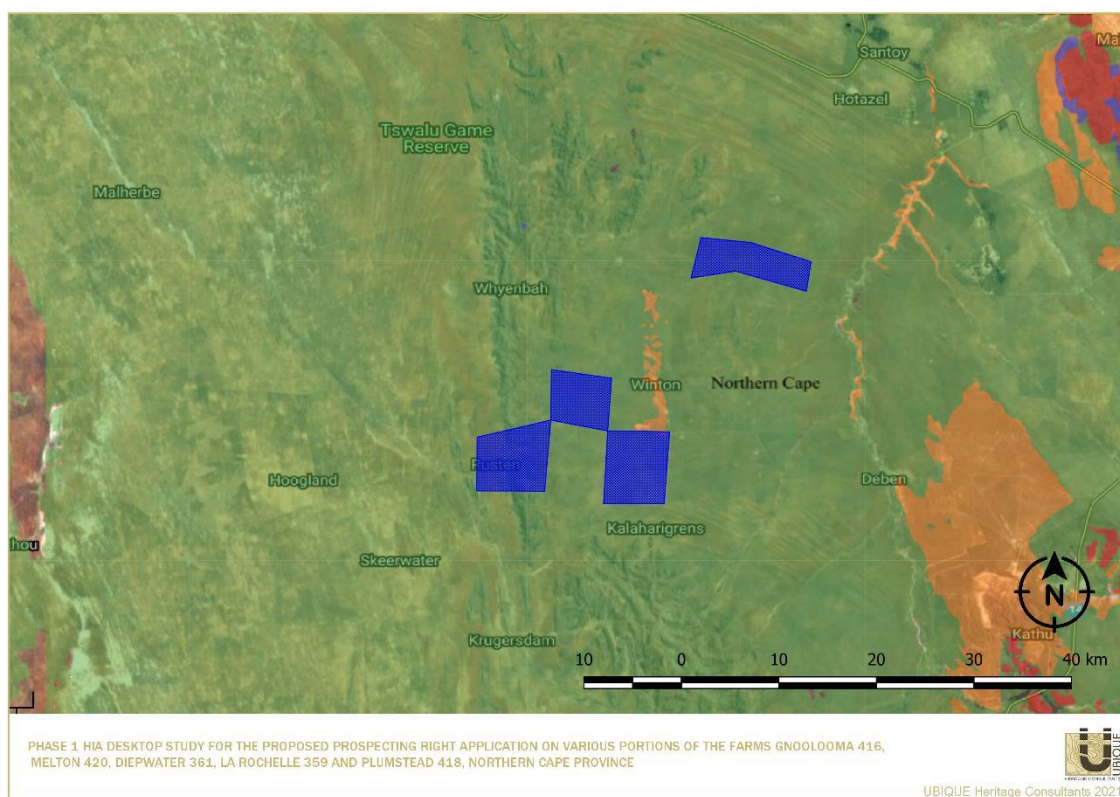


Figure 20: SAHRIS PalaeoSensitivity Map, indicating Moderate (green) and High (orange) palaeontological significance in the study area, (<https://sahris.sahra.org.za/map/palaeo>)

12.13 Socio Economic Characteristics

The application area is located within two district municipalities (DM) namely John Taolo Gaetsewe District Municipality (DM) and ZF Mgcawu DM and two local municipalities (LM) namely Joe Morolong LM and Tsantsabane LM. A short description of each of the aforementioned DMs and LMs, as well as the socio-economic status of each, is provided below.

12.13.1 ZF Mgcawu DM

ZF Mgcawu DM forms the mid-northern section of the Northern Cape Province on the frontier with Botswana. It covers an area of more than 100 000 km² (almost 30% of the entire Province) out of which 65 000 km² compromise the vast Kalahari Desert, Kgalagadi Trans Frontier Park, and the former Bushman Land. The majority of the population is located in the Khara Hais Municipality (42%), followed by the Kai! Garib Municipality (24%) and the Tsantsabane Municipality (12%). The main settlements in the aforementioned municipalities are Upington, Keimoes, and Postmasburg (ZF Mgcawu DM IDP, 2019)

12.13.1.1 Tsantsabane LM

The Tsantsabane LM covers an area of 5 887km². The municipal area falls in the Gamagara Corridor, which comprises of the mining belt of the John Taolo Gaetsewe and ZF Mgcawu districts and runs from Lime Acres and Danielskuil to Hotazel in the north. The corridor focuses on the mining of iron and manganese (Tsantsabane IDP, 2018). The proposed application area is located in Wards 6 of this LM.

According to Census 2011, the population figures for Tsantsabane LM is 35 093, which indicates a population growth 4 079 from population size of 31 014 (Census 2001). The municipality has 9 839 households. From a statistical analysis it is clear that there has been an increase of people obtaining Matric since 2001. There has also been an increase in the number of people with higher education. The statistics indicate that although a high number of students enrol for primary school, a very low number of students complete grade 12. This has resulted in a very low probability for employment. Less than 15% of the population has a tertiary qualification or have completed Grade 12. According to the STATSA (2011), unemployment has drastically reduced from 4 466 in 2001, to 3 795 in 2011, which indicates a decrease of 15%. Employment has increased by 69% in 2011. Almost half of the population has no income, while more than 10% of the population earns less than R14 00 pm, indicating high levels of poverty.

Mining in Tsantsabane is the highest contributor to both its economic growth and job creation. Tsantsabane is located 200km outside of Kimberley. Tsantsabane has three main traffic routes that provide access to other cities, namely Johannesburg via Kuruman and the Kalahari and Cape Town via Kimberly. More than 99,86% of the municipality is currently vacant/undeveloped. Tsantsabane has no traditional or tribal areas and 90% of the population resides in the urban areas while 10% of the population resides on farms.

Due to the increase in mining activities, the demand for housing has also increased. There was a 2.7% population growth between 2001–2011. In 2011 over 26% of the population was unemployed and over 30% of the economically active population earned no income. Mining accounts for 55% of the GDP within the region. There are 9,839 households in Tsantsabane, with an average household size of 3.5 people. 72% of the residents live in formal dwellings. 67% of households use a flush toilet connected to sewerage and 45% have piped water inside. 57% receive weekly refuse removal. 59.6% of the houses have been fully paid off.

12.13.2 John Taolo Gaetsewe District

The John Taolo Gaetsewe DM is the second smallest district in the Northern Cape, only occupying 6% of the province (27 293 km²). The district comprises of 186 towns and settlements, of which majority (80%) are villages situated in the Joe Morolong LM. The districts population in 2016 was 242 264 people, where an increase of population is evident in the Gamagara LM.

12.13.2.1 Joe Morolong LM

The Joe Morolong LM is accessible via the National infrastructure through the N14 which links North West and the Northern Cape Provinces. Joe Morolong Local Municipality covers 20, 172km² area and covers one semi-urban area, villages and commercial farms. The incorporation of Vanzylsrus and Hotazel has increased the geographical area of the municipality. Census 2011 shows that the population has decreased as a result of people migrating to Gasegonyana and Gamagara, being closer to business centre.

The municipality is characterized by rural establishments that are mostly connected through gravel and dirt roads. There are Tribal authorities in the municipal jurisdiction with eight (8) Paramount Chiefs. The municipality is regarded as the poorest area in the district. The population is 89 377 as per the Census 2011 report, with 146 villages and 2 small towns and surrounding private commercial farms and government owned farms (Department of Rural Development and Department of Public Works) (number). There are 20 707 households with a population growth of -0,9%. The municipality has 168 schools, 4 police stations, 24 clinics and 3 community health centres. Joe Morolong LM is divided in 15 wards as per the ward delimitation by Municipal Demarcation board and the application area falls within Ward 4.

Mining and Agriculture are the largest contributing factors in terms of the economy in the Municipality. The following mining houses are found within the jurisdiction of the municipality: UMK, South 32, Assmang Blackrock Mine, Tshipi-e-Ntle, Kalagadi, Kudumane Mining Resources, Baga Phadima Sand Mining, Sebilo Mine and Aqcuila mine (Sebilo and Aqcuila not yet in operation).

12.14 Specific environmental features and infrastructure occurring on site which may require protection, remediation, management or avoidance

The following specific environmental features and infrastructure have been identified that my require protection, remediation, management or avoidance:

- Ecological support areas.
- Pans/depression wetlands.
- Heritage resources.
- Farmhouses.
- Farm worker's accommodation.
- Abstraction boreholes.
- Gravel roads.
- Powerlines.
- Fences and gates surrounding game farms/camps.

Prospecting will allow for enough flexibility in drilling to avoid the environmental features and infrastructure identified above. If there is a need to conduct activities in any of these areas, then the necessary applications and/or landowner agreements will be sought and approved prior to conducting activities in these areas. In instances where boreholes will have to be situated inside watercourse buffers, the requisite authorisations will be obtained from the DWS.

12.15 Description of the current land uses

The current land-use of the application area is grazing by livestock and game. Neighbouring farms are also being used for livestock grazing and game farming, with nature reserves and mining further away from the site. The major land cover of the study area as classified by the SANBI is natural land (Refer to Figure 21 below).

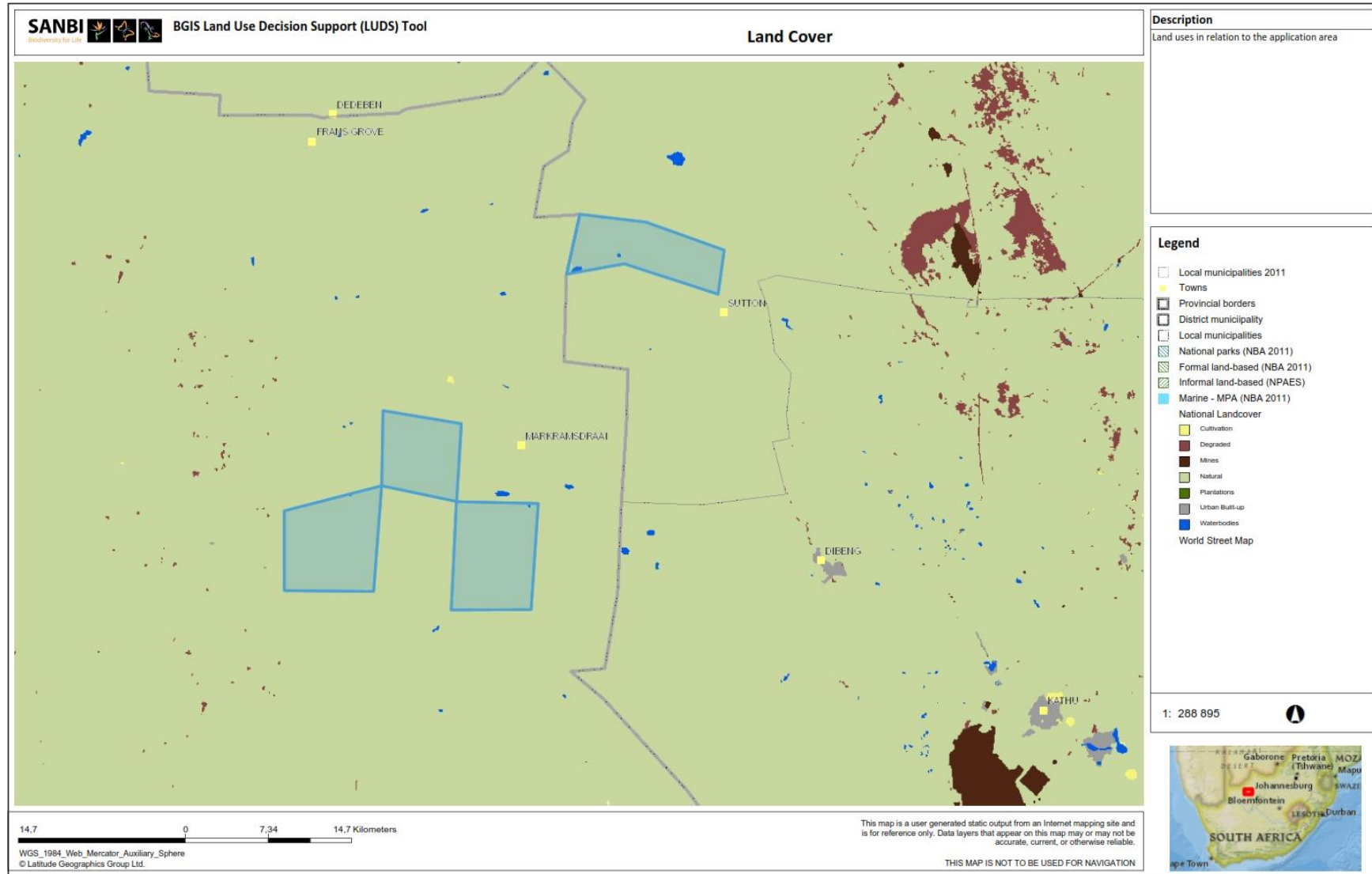


Figure 21: Land cover classification of study area

13 Impacts and risks identified

Table 10 lists the potential impacts identified per environmental aspect. These impacts have been further refined and assessed according to the quantitative impact assessment methodology described in Section 13.1 below and the results, including the nature, significance, consequence, extent, duration and probability of the impacts as well as the degree to which these impacts can be reversed, are presented in Table 12 in Section 14.2.

Table 14: Summary of the potential impacts identified

Aspect	Potential Impacts
Geology	The local geology will be disturbed by drilling for core samples that has a direct impact on the geological strata.
Topography	Localised dips in topography if boreholes collapse after material is replaced.
Land Capability and Use	Land use and capability will not be significantly impacted as the current land use can continue concurrent to prospecting activities.
Soils	Soil contamination from hydrocarbon spillages from the drill rig and vehicles, leakage from portable toilets and littering.
	Disturbance of soil resource caused by the movement of the drill rig, vehicles, establishment of the drill site and temporary contractor's yard.
Flora	Loss and degradation of vegetation caused by the movement of the drill rig, vehicles, establishment of the drill site and temporary contractor's yard over undisturbed areas.
	Potential invasion of alien plants on disturbed areas.
Fauna	Disturbance of animal species especially sensitive bird species nesting in and around the proposed drill sites.
	Increased human activity in the area can result in harm to animals caused by littering, accidents, and illegal hunting.
Surface water and aquatic ecosystems	Disturbance to the bed and banks of watercourses if the activity proceeds indiscriminately.
	Deterioration in surface water quality due to hydrocarbon, sewage, process water from sumps or other waste spillages ending up in surrounding watercourses.
	Irresponsible use of water and water wastage.
Groundwater	Contamination of the groundwater resources through hydrocarbons, process water and wastes seeping into the groundwater table in the event of leaks/spills.
	Drilling into the geological strata may cause cracks leading to disruption of the aquifer.
Air quality	Reduction in the ambient air quality through the creation of fugitive dust from the movement of the drill rig and vehicles as well as drilling activities.
Noise	Increase in the ambient noise levels caused by the drilling activities and movement of vehicles.
Visual	Change in the visual characteristics of the immediate area around the drill sites and its surrounds
Heritage resources	Damage or destruction of any heritage resources.
Socio economic, health and safety	Temporary employment opportunities for contractors (drilling and sample analysis)
	Theft and safety risk to surrounding landowners
	Increase potential for accidents caused by moving vehicles
	Damage to existing infrastructure incl. roads, fences and gates.
	Increase risk of veld fires

13.1 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks

The methodology used determines the significance of the impacts by evaluating the consequence (extent, duration, and severity) and probability of each impact. The definitions of the terms used within the methodology are provided below, followed by the stepped approach.

Definitions

Aspect – a particular part or feature of something.

Impact – is defined as any change to the environment, whether positive or negative, resulting from a facility/project/development's products, development, and activities.

Cause/Activity – the precipitating factor resulting in a perceived impact.

Mitigation Measures – identified actions and requirements designed to be instituted to reduce the undesirable effects of a perceived impact.

Significance Level – the degree of importance of the impact on the social and/or biophysical environment; a proxy for the degree to which the impact is reversible and may cause irreplaceable loss of a resource. The approach used to determine significance makes use of value judgements to determine the degree of change on the social and/or biophysical environment, after which the consequence and likelihood of the impact are ranked to provide a significance level.

Extent – the spatial scope of the perceived impact. (How large an area will be impacted).

Duration – the temporal scope of the perceived impact, or the period of time during which the social and/or biophysical environment is changed by the impact. (How long the impact will last).

Severity – the degree to which the natural, cultural, and/or social functions and processes of an environment may be affected or altered by a perceived impact. (How extreme/harsh the impact will be. The degree of disturbance).

Probability – the possibility or likelihood of the impact occurring or manifesting.

13.1.1 Approach

The stepped approach used is provided below:

Step 1: The different aspects of the proposed project are identified along with the associated environmental and social impacts which may occur during the construction, operation, decommissioning and post closure phases.

Step 2: Assess the environmental and social impacts by providing a numerical score for each of the following factors using the ranking scales in Table 11:

- Extent.
- Duration.
- Severity.
- Probability

Step 3: Once these factors are ranked for each impact, the significance points are calculated by using the formula below.

$$\text{Significant Points (SP)} = \text{Consequence (Extent + Duration + Severity)} \times \text{Probability}$$

Step 4: Mitigation measures for each impact are determined during the EIA Phase, and the above approached is repeated to determine the significance of each impact post-mitigation.

13.1.2 Significance Level

The maximum value is 100 significant points. The significance level could therefore be rated as either Very High (VH), High (H), Medium (M), Low (L), or Very Low (VL) on the following basis:

Very Low	Negligible impact which does not require further mitigation.	SP <19
Low	Acceptable impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent the implementation of the project. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment.	SP 20 - 39
Medium	An important impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in either a positive or negative medium to long-term effect on the social and/or natural environment.	SP 40 - 59
High	A serious impact, if not mitigated, may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term change to the (natural &/or social) environment and result in severe negative or beneficial effects.	SP 60 - 79
Very High	A very serious impact which, if negative, may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigable and usually result in very severe negative or very beneficial effects.	SP > 80

Table 15: Variables with each category score

CONSEQUENCE		Extent (Magnitude) of the Impact	SP
	Site	Limited to parts of the application area.	1
	Project area	Limited to within the application area.	2
	Local	Extends beyond the application area on a local scale.	3
	Regional	Extends beyond application area on a regional scale.	4
	National	Widespread, far beyond the application area (regional or greater area)	5
		Duration of the Impact	
	Immediate	One to two days.	1
	Short term	One Week to one Month.	2
	Medium term	Two Months to one Year	3
	Long term	Two to five years. Ceases with operational life of project.	4
	Permanent	Impact occurs beyond lifespan of the project.	5
		Severity of the Impact	
	Minor	Non-harmful. Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are not affected.	2
	Low	Potentially harmful. Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are negligibly altered.	4
	Medium	Slightly harmful. Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are slightly altered.	6
	High	Significantly Harmful. Impacts affect the environmental in such a way that natural, cultural and/or social functions and processes are notably altered.	8

	Very High	Extremely harmful. Impacts affect the environmental in such a way that natural, cultural and/or social functions and processes are severely altered.	10
Probability	Probability		
	None	0% chance of the impact occurring.	0
	Improbable	The possibility of the impact materializing is very low. 1% to 9% chance of occurrence.	1
	Low Probability	Impact not expected to occur, but conceivable. 10% to 30% chance of occurrence; and Circumstances rarely encountered.	2
	Medium Probability	Impact may occur sometimes. 31 – 60% chance of occurrence. Circumstances occasionally encountered.	3
	High probability	Impact will probably occur. 61 – 90% chance of occurrence. Circumstances frequently encountered;	4
	Almost Certain	91 -100% chance of occurrence.	5

13.2 Assessment of potential impacts and risks

Refer to Appendix 3 for the impact assessment table.

13.3 Positive and negative impacts that the proposed activity alternatives will have on the environment and the community that may be affected

No activity alternatives are considered except for the No Go Option.

Should the project not be implemented, the status quo remains, and farming activities will continue unaltered with no negative impacts on the biophysical, socio economic or cultural environment. On the other hand, not proceeding with the proposed operation would have a direct consequence in that the mineable potential of the suspected reserve would not be determined.

13.4 Possible mitigation measures that could be applied and the level of residual risk

Refer to Section 14 for the mitigation measures identified to reduce and/or minimize potential impacts and risks where they are unavoidable. It is anticipated that the mitigation measures envisaged in this report and the EMPr (Part B) will be adequate to manage the potential negative impacts on the biophysical and societal environment.

13.5 Motivation where no alternative sites were considered

With regard to location, the prospecting activities are delimited by the properties available for prospecting (i.e., not held by another company or declared off limits by the government) and the geology of the surrounding area. The application area has already been determined through extensive geological research and prospecting can only take place in the area on which the right is granted.

13.6 Statement motivating the preferred site

The final layout of the drilling can only be completed once the non-invasive activities have been undertaken. The preliminary positions of the proposed prospecting boreholes have been sited to give a representative sample for the project area in Figure 4 above considering the buffer zones around the watercourses. Alternatives may be considered based on the findings of the geophysical investigations.

At this stage, it can only be stated that invasive prospecting (drilling) will avoid watercourses, identified heritage resources and protected plants species by the establishment of buffer zones in which no activities can take place. In instances where boreholes will have to be situated inside these buffers, the requisite authorisations will be obtained.

14 Full Description of the Process Undertaken to Identify, Assess and Rank the Impacts and Risks the Activity will impose on the Preferred Site through the Life of the Activity

This section describes the potential positive and negative environmental impacts identified for the proposed operation. The objective was to determine the significance level of each of the potential environmental impacts and to identify mitigation measures to prevent, reduce or contain the impacts during all the phases of the operation. The impacts were assessed, according to the methodology described in Section 13.1. The following key principles contained in the National Environmental Management Act (Act 107 of 1998) (NEMA), were considered during the impact assessment:

- Sustainability – development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.
- Mitigation hierarchy – avoidance of environmental impact, or where this is not possible, minimising the impact and remediating the impact; and
- The duty of care of developers towards the environment as embodied in the NEMA (section 28) and the NWA (section 20).

The assessment methods proved adequate to determine the nature and extent of all impacts that the proposed operation may have on the natural, social, and economic environments. Based on the findings of the impact assessment, which included a thorough public participation process, a comprehensive Environmental Management Programme (EMPr) has been developed to prevent, reduce or contain the impacts of the proposed prospecting operation – see Part B EMPr - Section 5 of this report. The development and implementation of a successful EMPr has benefits beyond merely meeting legal obligations. It contributes to environmental awareness of the workforce, it can facilitate the prevention of environmental degradation, and minimise impacts when they are unavoidable.

14.1 Assessment of each identified potentially significant impact pre- and post-mitigation

The Impact Assessment below assesses the significance of the potential environmental impacts of each of the proposed prospecting activities, described in Section 6.2 above, pre-, and post-mitigation. All impacts of the proposed operation are expected to occur during Phase 2: Invasive Prospecting. The table further indicates if these impacts can be reversed, degree to which these impacts could cause irreplaceable loss of resource and whether these impacts can be avoided, managed, or mitigated along with the mitigation type proposed.

Through the public participation process (PPP), any issues or potential impacts identified by the IAPs have been added to the list of potential impacts.

All these impacts have been assessed as per the methodology described in Section 13.1 above and their significance determined. ***Please note the full impact assessment which shows the determination of the level of significance is included as Appendix 3 of this report.*

Impact identification has therefore been a consolidated approach based on professional experience, desktop studies and IAP (including organs of state involved in the PPP) input.

Table 16: Impact Assessment

Potential Impact	Aspect	Type and Nature of Impact	Reversible	Degree to which impact can cause irreplaceable loss of resource	Significance if not mitigated	Can be avoided, managed / mitigated (Yes/No)	Mitigation type	Significance if mitigated
Core Drilling								
Cracks and disruption to geological layers	Geology	Direct Negative	Not reversible	Low	Medium	No	Control by: Plan location of invasive prospecting sites properly to avoid geological features. Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources.	Medium
Hydrocarbon contamination of soils	Soils	Direct Negative	Completely reversible	Very low	Low	Yes	Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. Equip vehicles on site with drip trays and place drip trays under leaky equipment. Spill kits must be available on site and personnel trained to utilize these to clear spills immediately.	Very low
Harm/disturbance to protected fauna and flora species	Fauna and Flora	Direct Negative	Partially reversible	Low	Medium	Yes	Plan location of drill sites properly to avoid sensitive features such as water courses and rocky outcrops. Survey prospecting sites in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. Do not hinder, harm, or trap animals.	Very low
Disturbance to streams and wetlands if activity proceeds indiscriminately.	Surface water and aquatic ecosystems	Direct Negative	Not reversible	Medium	Medium	Yes	No prospecting activities can take place within 100m of streams and/or 500m of wetlands unless authorisation is obtained to do so. Plan drill sites properly to avoid watercourses.	Low
Hydrocarbon contamination of surface water through contaminated runoff.		Direct Negative	Not reversible	Low	Medium	Yes	Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site.	Low
Cracks and disruption to aquifers.	Groundwater	Direct Negative	Not reversible	High	Medium	Yes	Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources. Limit development to target rocks and reduce exposure of aquifer rocks.	Low
Potential hydrocarbon and chemical contamination of groundwater resources.		Direct Negative	Not reversible	Low	Medium	Yes	Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. Use percussion drilling to drill through the clay and just before the rift switch over to diamond drilling to avoid the use of chemicals.	Low
Irresponsible use of water and water wastage		Cumulative Negative	Not reversible	Low	Low	Yes	Recycle water from the sumps to re-use on the rig. Source water from existing lawful water use or water service provider. Use clean water responsibly.	Low

Potential Impact	Aspect	Type and Nature of Impact	Reversible	Degree to which impact can cause irreplaceable loss of resource	Significance if not mitigated	Can be avoided, managed / /mitigated (Yes/No)	Mitigation type	Significance if mitigated
							Investigate whether other drilling methods (i.e., air flush – does not use water for drilling) is feasible	
Emissions into the atmosphere through use of diesel-powered equipment, machinery, and vehicles.	Air quality	Cumulative Negative	Not reversible	Low	Medium	Yes	Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment.	Low
Increase in ambient noise levels.	Noise	Cumulative Negative	Completely reversible	Very low	Medium	Yes	Drilling must be done in consultation with the landowners to ensure that work schedules are communicated to them. Prospecting activities must be conducted during normal working hours (Monday – Friday - 7am – 17pm) Implement noise control measures on noisy equipment.	Low
Visual intrusion and disturbance to the sense of place.	Visual	Direct Negative	Completely reversible	Very low	Low	Yes	Keep disturbed areas as small as possible. Keep the drill site neat, clean, and organised in order to maintain a tidy appearance. Remove waste off site as soon as possible or place it in closed bins in order to keep the site free from additional unsightly elements.	Very low
Damage or destruction of any heritage resources.	Heritage	Direct Negative	Not reversible	High	Medium	Yes	Establish a 50m buffer/safety zone around graves. Implement the Chance Find Protocol during the planning process to help establish the exact locations of the boreholes.	Low
Creation of employment opportunities	Socio Economic	Direct Positive	N/A	N/A	Low +	Yes	Appoint local contractors where possible.	Medium +
Establishment of drill site and temporary contractors' yard								
Compaction of soils	Soils	Direct Negative	Completely reversible	Very low	Low	Yes	Keep disturbed area as small as possible. Rip compacted soils.	Low
Temporary change in land use	Land use	Direct Negative	Completely reversible	Low	Low	Yes	Keep the disturbed area as small as possible.	Very low
Disturbance/damage to vegetation and subsequent disturbance to animal species	Flora	Direct Negative	Partially reversible	Low	Medium	Yes	Plan location of drill sites properly to avoid sensitive features such as watercourses and rocky outcrops. Restrict vegetation clearance. Remove vegetation during periods of low rainfall or dry periods. Relocate protected plant species for which permits are obtained rather than destroying species.	Low
Increase in dust fall out	Air quality	Cumulative Negative	Completely reversible	Very low	Medium	Yes	Dust suppression procedures should be implemented to reduce and control dust on the drill site.	Low
Increase in ambient noise levels.	Noise	Cumulative Negative	Completely reversible	Very low	Medium	Yes	Drilling must be done in consultation with the landowners to ensure that work schedules are communicated to them. Prospecting activities must be conducted during normal working hours (Monday – Friday - 7am – 17pm)	Low

Potential Impact	Aspect	Type and Nature of Impact	Reversible	Degree to which impact can cause irreplaceable loss of resource	Significance if not mitigated	Can be avoided, managed / /mitigated (Yes/No)	Mitigation type	Significance if mitigated
							Implement noise control measures on noisy equipment.	
Visual intrusion and disturbance to the sense of place.	Visual	Direct Negative	Completely reversible	Very low	Low	Yes	Keep disturbed areas as small as possible. Keep the drill site neat, clean, and organised in order to maintain a tidy appearance. Remove waste off site as soon as possible or place it in closed bins in order to keep the site free from additional unsightly elements.	Very low
Damage or destruction of any heritage resources.	Heritage	Direct Negative	Not reversible	High	Medium	Yes	Establish a 50m buffer/safety zone around graves. Implement the Chance Find Protocol during the planning process to help establish the exact locations of the drill sites and contractors yard.	Low
Drill rig, machinery, and vehicle movement								
Compaction of soils	Soils	Direct Negative	Completely reversible	Very low	Medium	Yes	Remain in designated roads / routes / activity areas. Where not possible, routes must be properly planned to reduce disruption to soil as far as possible.	Low
Hydrocarbon contamination of soils		Direct Negative	Completely reversible	Very low	Medium	Yes	Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection.	Low
Harm/disturbance to protected fauna and flora species	Flora and Fauna	Direct Negative	Partially reversible	Low	Medium	Yes	Survey any off-road routes for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. Remain in designated roads as far as possible.	Low
Disturbance to streams and wetlands if activity proceeds indiscriminately.		Direct Negative	Partially reversible	Low	Low	Yes	No prospecting activities can take place within 100m of streams and/or 500m of wetlands unless authorisation is obtained to do so.	Low
Hydrocarbon contamination of surface water through contaminated runoff.	Surface water and aquatic ecosystems	Direct Negative	Not reversible	Low	Low	Yes	Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection.	Low
Potential hydrocarbon contamination seeping to the groundwater environment.	Groundwater	Direct Negative	Not reversible	Low	Low	Yes	Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made.	Low
Emissions into the atmosphere through use of diesel-powered equipment, machinery, and vehicles.	Air quality	Cumulative Negative	Not reversible	Low	Medium	Yes	Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment.	Low
Increase in dust fall out		Cumulative Negative	Completely reversible	Very low	Medium	Yes	Dust suppression procedures should be implemented to reduce and control dust on the access road and drill site. Control the speed of operational vehicles. The drill rig must remain on site as far as possible.	Low
Increase in ambient noise levels.	Noise	Cumulative Negative	Completely reversible	Very low	Medium	Yes	Drilling must be done in consultation with the landowners to ensure that work schedules are communicated to them. Prospecting activities must be conducted during normal working hours (Monday – Friday - 7am – 17pm). Implement noise control measures on noisy equipment.	Low

Potential Impact	Aspect	Type and Nature of Impact	Reversible	Degree to which impact can cause irreplaceable loss of resource	Significance if not mitigated	Can be avoided, managed / /mitigated (Yes/No)	Mitigation type	Significance if mitigated
Damage or destruction of any heritage resources.	Heritage	Direct Negative	Not reversible	High	Medium	Yes	Establish a 50m buffer/safety zone around graves. Implement the Chance Find Protocol during the planning process to help establish the exact locations of the boreholes.	Low
Damage to existing infrastructure incl. gates, roads, and fences.	Socio economic, health and safety	Cumulative Negative	Completely reversible	N/A	Medium	Yes	Remain in designated roads /routes. The drilling team must always close the farm gates after entering. If infrastructure were damaged by the drill team the Applicant must repair the damages (i.e., grade farm roads that have been damaged due to use by prospecting team).	Low
Increase potential for road accidents		Direct Negative	Not reversible	N/A	Low	Yes	The drilling contractor's personnel will always adhere to the speed limit. No transporting will occur after sunset. Vehicles will be in roadworthy condition with reflective strips to make them clean and visible for other road users. Intersections with main tarred roads will be clearly signposted.	Very low
Water Management								
Loss of soil resource due to erosion	Soils	Indirect Negative	Partially reversible	Low	Low	Yes	Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary. Effective managing of the topsoil by covering or reseeded the stockpiles to avoid erosion. Any erosion gullies must be remediated immediately.	Low
Potential contamination of surface water resources with process water from the sumps	Surface water and aquatic ecosystems	Direct Negative	Not reversible	Low	Low	Yes	Use biodegradable lubricants and fluids/polymers. Maintain buffer zones around watercourses as ecological corridors and refuges.	Low
Potential contamination of groundwater through process water seepage	Groundwater	Direct Negative	Not reversible	Low	Medium	Yes	Line sumps with the appropriate lining system. Isolate porous or highly transmissive groundwater zones through capping or grouting to prevent clean groundwater ingress or recharge of contaminated water.	Low
Storage and Handling of Dangerous goods								
Hydrocarbon contamination of soils	Soils	Direct Negative	Completely reversible	Very low	Medium	Yes	Equip vehicles on site with drip trays and place drip trays under leaky equipment.	Low
Hydrocarbon contamination of surface water through contaminated runoff	Surface water and aquatic ecosystems	Direct Negative	Not reversible	Low	Low	Yes	Spill kits must be available on site in the event of a spillage.	Low
Potential hydrocarbon contamination seeping to the groundwater environment	Groundwater	Direct Negative	Not reversible	Low	Medium	Yes	Adhere to safe work procedure when refuelling vehicles and machinery. Hydrocarbons must be stored within portable bund tanks.	Low
Ablution Facilities								
Potential contamination of soils and groundwater with sewage	Soils Groundwater	Direct Negative	Completely reversible	Very low	Low	Yes	Inspect, repair, and replace any damaged toilets. Appoint the necessary reputable contractor to manage portable toilets.	Very low

Potential Impact	Aspect	Type and Nature of Impact	Reversible	Degree to which impact can cause irreplaceable loss of resource	Significance if not mitigated	Can be avoided, managed / /mitigated (Yes/No)	Mitigation type	Significance if mitigated
							Implement proper housekeeping and hygienic practices.	
Potential contamination of surface water with sewage	Surface water and aquatic ecosystems	Direct Negative	Not reversible	Low	Low	Yes	Maintain buffer zones around watercourses as ecological corridors and refuges. Inspect, repair, and replace any damaged toilets. The portable toilets must be managed by a reputable contractor, emptied on a regular basis as needed. Toilets must be maintained in hygienic state.	Very low
Domestic Waste Management								
Potential contamination of soils with indiscriminately dumped waste or littering.	Soils	Direct Negative	Completely reversible	Very low	Low	Yes	Domestic waste must be collected in waste bins that are located on site. The waste bins must be marked clearly indicating what waste must be disposed of in what bin.	Very low
Potential contamination of surface water with indiscriminately dumped waste or littering.	Surface water and aquatic ecosystems	Direct Negative	Partially reversible	Very low	Low	Yes	Employees must be encouraged to re-use, recycle, and reduce waste where possible.	Very low
Potential contamination of groundwater with indiscriminately dumped waste or littering.	Groundwater	Direct Negative	Not reversible	Low	Low	Yes	No burning of domestic waste may be done on site. Appoint reputable contractors for the removal and disposal of general waste at a licensed facility.	Low
Rehabilitation of boreholes								
Localised dips in topography if boreholes collapse after material is replaced.	Topography	Residual Negative	Partially reversible	Medium	Medium	Yes	Inspect and take immediate action to repair any dips by levelling and grading the disturbed area.	Low
Soil replacement and re-vegetation of disturbed areas	Soils	Direct Positive	N/A. Positive impact	N/A	Low +	Yes	Enhance positive impact through: Rehabilitation must be on-going as soon as drilling results are completed. Replaced soil should be vegetated as soon as possible, where required, to prevent erosion and establishment of weed species. Soil compaction should be avoided as far as possible but where not compacted soils must be ripped to correct any compaction.	Medium +
Permanent change of land use back to pre-drilled state	Land use	Residual Positive	N/A. Positive impact	N/A	Medium +	Not necessary	N/A	Medium +
Alien plant infestation	Flora	Residual Negative	Completely reversible	Low	Medium	Yes	Remove alien and invasive species that may establish around prospecting sites. Clear all vehicles coming to site of any vegetative material.	Low
Improvement of visual quality and sense of place	Visual	Residual Positive	N/A. Positive impact	N/A	Low +	Yes	Enhance positive impact through: Rehabilitation must be on-going as soon as drilling results are completed.	Medium +
Influx of people into the area								
Theft and safety risk resulting in the decrease in quality of life	Socio economic, health and safety	Indirect Negative	Not reversible	N/A	Low	Yes	Ensure farm gates are always closed. No employee will be allowed to loiter around farms.	Low

Potential Impact	Aspect	Type and Nature of Impact	Reversible	Degree to which impact can cause irreplaceable loss of resource	Significance if not mitigated	Can be avoided, managed / /mitigated (Yes/No)	Mitigation type	Significance if mitigated
Increase risk of veld fires							The drill contractor must monitor the whereabouts of the drill team.	
		Indirect Negative	Reversible	Medium	Low	Yes	<p>No employees will be allowed to make any open fires on the farms or adjacent land.</p> <p>Cigarette butts may not be thrown in the veld, but must be disposed of correctly.</p> <p>Contractors must ensure that basic fire-fighting equipment and suitably qualified/experienced personal are always available on site.</p> <p>Fire extinguishers shall be placed at working areas and all areas where hazardous substances are kept.</p> <p>The drilling contractor must liaise with the local Fire Protection Agency (FPA) before drilling commences.</p>	Low

14.2 Summary of specialist reports

Table 17: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE BAR REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Phase 1 Heritage Impact Assessment & Palaeontological Desktop Study	(1) A site-specific field study must be undertaken, after the prospecting right has been issued as soon as the final locations of the boreholes have been determined.	X	Part A Section 15.5
	(2) If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal, and ash concentrations), fossils or other categories of heritage resources are uncovered during prospecting, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA.	X	Part B Section 5
	(3) The developer must refer to the visual guide or rudimentary Chance Finds Protocol developed for this project (Section 7 of the HIA) during the planning process to help establish the exact locations of the boreholes. If unmarked human burials are discovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA.	X	Part A Section 14.1 Part B Section 7
	(4) Graves must be avoided with the inclusion of a 50m buffer/safety zone.	X	Part A Section 14.1 Part B Section 5
	(5) The project must be exempt from a full Paleontological Impact Assessment.	X	Part A Section 18.1.2

15 Environmental impact statement

15.1 Summary of the key findings of the environmental impact assessment

The key positive and negative impacts, based on the impact assessment in Section 13, are summarised below.

15.1.1 Key positive impacts

The proposed prospecting operation will create employment opportunities for contractors but due to the temporary nature the significance of the impact will only be of medium significance. As discussed under Section 8 above prospecting activities will not result in significant positive impacts but it is a precursor to possible mining activities which will have numerous economic benefits through the implementation of the SLP.

15.1.2 Key negative impacts

No impacts are expected to exceed a significance of medium post mitigation. The key negative impacts are summarised below:

Cracks and disruption to the aquifer and groundwater contamination

The potential disruption to the aquifers has a high significance rating and potential groundwater contamination has a medium significance rating pre-mitigation because the affected catchment is water stressed with low groundwater recharge rates. Therefore, should the proposed prospecting activities negatively impact on the groundwater quality or quantity of the water resource, it will further compound the stress of the already strained resource. The proposed mitigation/management measures can reduce the significance of the impacts to medium and low respectively.

Surface water contamination

The only watercourses found within the application area are isolated depression wetlands which form in natural depressions during the rainy season. Due to the limited number of watercourses and isolated nature, the probability of the prospecting activities resulting in contamination is medium which can be reduced to low through the establishment of buffer zones around the regulated area of a watercourse. Therefore the potential impacts on surface water resources are rated as low pre and post mitigation.

Disturbance to protected flora and fauna species

The application area largely consists of natural vegetation. Therefore the potential disturbance/damage to protected flora subsequent disturbance to fauna has a medium significance rating pre mitigation. The significance can be reduced to low by locating the drill sites in areas that can be accessed by using the existing road network.

Decrease in the ambient air quality and increase noise levels

The predominant activities in the surrounding area are agriculture and mining (situated further away from the application area), these activities coupled with an abundance of gravel roads in the area, can lead to elevated levels of dust. The proposed prospecting activities will contribute to the elevated dust and noise levels inside the application area with a significance rating of medium pre mitigation. The proposed mitigation/management measures can reduce the significance of the impact to low. Given the number of prospecting right applications in the area, it is likely that potential impacts from the operations will have a cumulative effect on the dust and noise pollution. However, the cumulative impacts of all the pending prospecting applications in addition to the proposed project could not be assessed in detail at this stage because no information regarding these other applications is available at the time of writing this report.

Damage to existing infrastructure incl. roads, fences, and gates

There are numerous gravel roads, fences and gates found in and around the application area that link the different farms and are used by the landowners and adjacent landowners daily. Should the infrastructure be damaged, it could result in loss of livestock, wildlife and/or accidents and therefor the impact has been rated as medium pre-mitigation. The proposed mitigation/management measures can reduce the significance rating to low because it will reduce the probability of the impact occurring to low. Given the number of prospecting right applications in the area, it is likely that potential impacts from the operations will have a cumulative effect on the degradation of the road network. However, the cumulative impact of all the pending prospecting applications in addition to the proposed project could not be discussed in detail at this stage because no information regarding these other applications is available at the time of writing this report.

Damage or destruction of any heritage resources

Any damage caused to graves sites are considered highly significant and not reversible however the impact can be avoided by implementing the Chance Find Protocol (described in Section 7 of the HIA Desktop study attached as Appendix 8) while determining the exact locations of the prospecting boreholes to proactively identify and manage heritage resources. Therefor the impact has a significance rating of low post mitigation.

15.2 Final Site Map

The number of boreholes required can only be finalised once the non-invasive prospecting study is completed. Preliminary positions have been proposed as detailed in Figure 22 below.

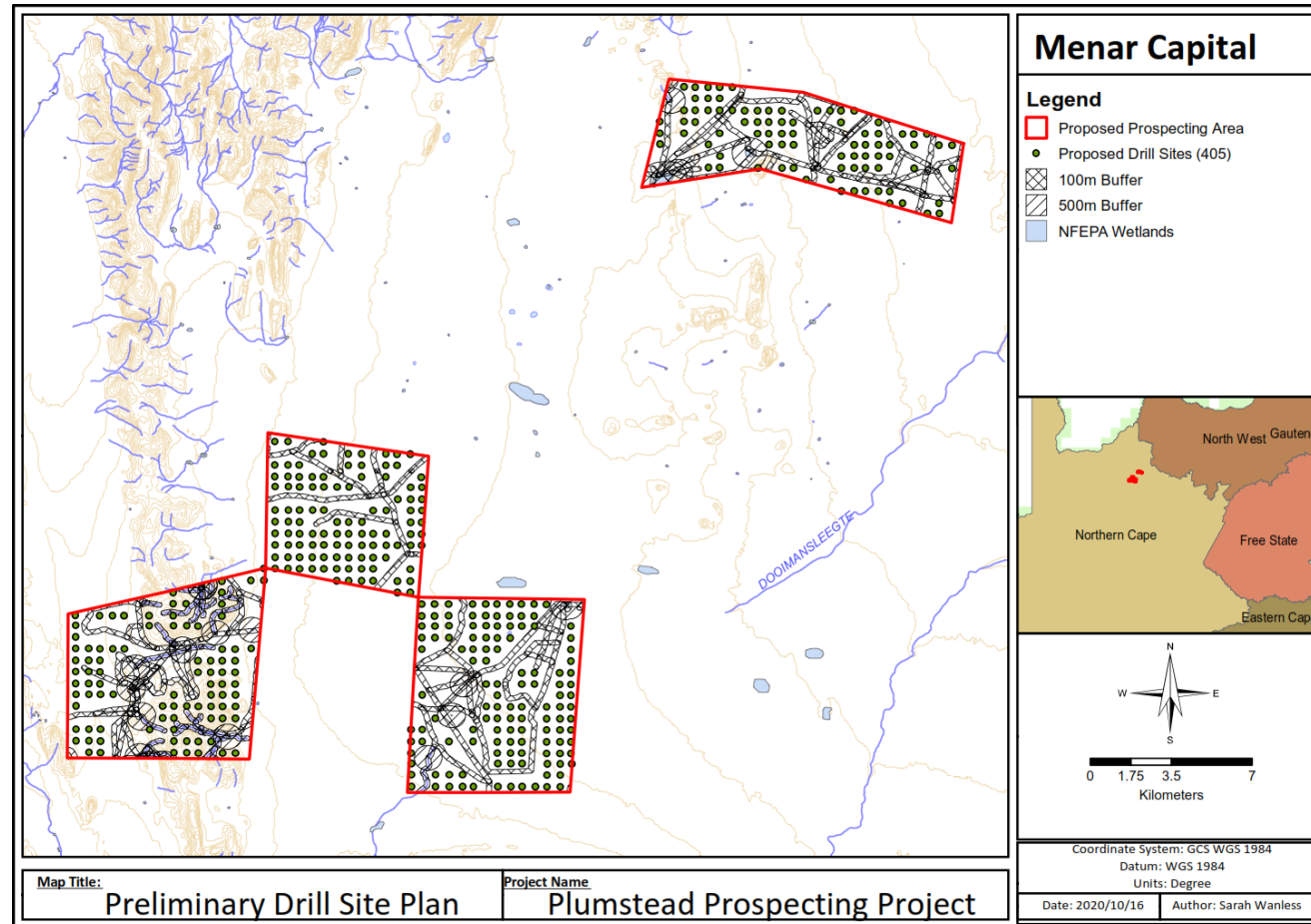


Figure 22: Preliminary Drill Site Plan

15.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

Most of the negative implications associated with the proposed operation are related to access and drilling, causing contamination of groundwater through waste spillages, impacts on watercourses, increase in dust and noise levels and their associated impacts on the surrounding environment. Positive impacts are associated with the brief creation of jobs.

15.4 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr

The overall Environmental Management objective is to minimize the potential negative environmental and societal impacts and maximise the positive socio-economic impacts of the proposed operation. The main impact management objectives and outcomes to guide and control all phases of the prospecting operation are presented below. These objectives must be attained and/ or maintained to ensure satisfactory environmental (social, economic, and biophysical) management of the operation. Environmental impact management objectives and outcomes are listed below:

- Conduct prospecting activities responsibly and ensure operation is compliant with legislative requirements.
- The drilling sites must be positioned by a geologist to ensure that it is not above any weak geological strata.
- Protect the biophysical environment as far as possible, specifically the depression wetlands and rocky outcrops and any protected species observed on site.
- To keep, as far as possible, water of differing qualities separate within a prospecting area, so as to minimise contamination of clean run-off and surface water.
- Prevent groundwater contamination through seepage.
- Reduce compaction of soil and maintain existing arable land capability by prohibiting movement of machinery outside the designated areas.
- Preserve protected flora and fauna species.
- Ensure atmospheric and noise pollution is kept to a minimum.
- Ensure adequate rehabilitation to allow continued land use.
- Ensure socially responsible activities.
- Protect historical and cultural sites if they are observed on site.
- Attain "cradle to grave" management of waste on site.
- Maintain high safety standards on site with reduced safety risks.
- Leave site without any incidents, safety risks, damage to infrastructure and theft to surrounding farmers.
- Comply with SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements to reduce the risk of hydrocarbon spillages.

The specific management objectives for each potential impact identified is described in Part B: EMPr Section 5.

15.5 Aspects for inclusion as conditions of Authorisation

The impact assessment focussed on the project scope as described in Section 4 which was compiled using the information provided by the Applicant. The mitigation measures identified to manage the potential impacts during the prospecting operation are contained in the EMPr. The implementation of the EMPr is a requirement in terms of NEMA and will be a condition of the Environmental Authorisation. The EMPr should form an integral part of the contract documents to ensure compliance with environmental specifications and management measures. The EMPr is not a static document and most undergo regular monitoring and auditing as key factors and processes may change through the life of the project which could alter the proposed mitigation measures. The Applicant must ensure compliance with all relevant legislation including but not limited to:

- MPRDA, 2002 (Act 28 of 2002)
- NEMA, 1998 (Act 107 of 1998)
- Northern Cape Nature Conservation Act, Act 9 of 2009
- National Environmental Management: Waste Act (No. 59 of 2009) GNR 921 (9 November 2013)
- National Water Act ,1998 (Act No.36 of 1998)
- National Environmental Management: Air Quality Act (Act No. 39 of 2004) GNR 893 (22 November 2013)
- Noise Control Regulations (GN R154 of 1992)
- National Environmental Management: Biodiversity (Act No.10 of 2004)
- National Forest Act (No. 84 of 1998)
- National Veld and Forest Fire Act, Act 101 of 1998
- National Heritage Resources Act, Act (NHRA), 1999 (Act No. 25 of 1999)
- Hazardous Substances Act (No. 15 of 1973)
- Conservation of Agricultural Resources Act (No. 43 Of 1983)
- Mine Health and Safety Act (No. 29 of 1996)

In addition, the following conditions should be included as part of the Environmental Authorisation:

- The EMPr must be enforced throughout the prospecting operation.
- A site-specific field study of the impact to heritage resources must be undertaken, after the prospecting right has been issued as soon as the final locations of the boreholes have been determined.
- Heritage resources and 50m buffer zones must be preserved at all times unless the necessary permits are obtained under SAHRA.
- A baseline groundwater study/hydrocensus must be done during Phase 1 of the prospecting operation to establish the baseline groundwater conditions against which the potential impacts can be monitored.
- Implement a Stormwater management plan in line with the provisions of GNR 704.
- No activity is to occur within the regulated area of a watercourse without the necessary authorisation under NEMA and NWA.
- Protected species must remain in situ until the necessary permits are obtained under NEM:BA.

- Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data.
- Appoint an Environmental Control Officer with the appropriate training and experience to monitor the implementation of the EMPr.

15.6 Description of any assumptions, uncertainties and gaps in knowledge

15.6.1 Assumptions

The following assumptions are made:

- The information provided by the Applicant with regards to the proposed activities are correct.
- No activity is to occur within the regulated area of a watercourse without the necessary authorisation under NEMA and NWA.
- Protected species will remain in situ until the necessary permits are obtained under NEM:BA.
- Planning before carrying out prospecting activities in a particular area and surveying the area before conducting invasive prospecting will occur to ensure the sensitive areas are preserved and to ensure prospecting proceeds in a manner compliant with national legislation.
- Rehabilitation will be applied on an on-going basis and no sites will be left exposed for more time than necessary to obtain the data. All areas disturbed during the drilling process will be rehabilitated to previous land use capability.

15.6.2 Uncertainties and gaps in knowledge

The following uncertainties and gaps in knowledge are applicable:

- The baseline environment was described through a desktop assessment as well as a once of site inspection.
- The exact location of the prospecting boreholes is not known at this stage.
- It was not always possible to involve all IAPs individually, however every effort has been made to involve as many affected stakeholders as possible.

15.7 Reasoned opinion as to whether the proposed activity should or should not be authorised

There exist no highly significant impacts and or risks after mitigation therefor it is the consideration of the EAP that authorisation of the activity should be granted, with the understanding that legal commitment and strict adherence to the EMPr are agreed to by the Applicant.

15.7.1 Conditions that must be included in the authorisation

Please refer to Section 15.5 above.

15.8 Period for which the Environmental Authorisation is required.

Prospecting activities are likely to require 3 years, including initial data assessment. The EA is requested for a period of 5 years in the event that additional permits or authorisations may be required once invasive prospecting activities commence.

16 Financial Provision

The total amount required to manage and rehabilitate the environment in respect of rehabilitation is R235 614.75 including VAT and contingencies.

16.1 Explain how the aforesaid amount was derived

The environmental liability only focussed on the proposed prospecting activities and was calculated using the DMRE's rule-based assessment and has factored in inflation. The closure components and size of disturbed areas provided by Menar in the Prospecting Work Program (PWP) was used to calculate the financial provision. The accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. Refer to Appendix 5 for more detail.

The financial provision required for all the additional environmental management and monitoring, as per the EMPr will be conducted by Menar where needed and will form part of their operational running costs.

16.2 Confirm that this amount can be provided for from operating expenditure

Menar confirms that a financial provision of R235 614.75 has been allocated and is available for the rehabilitation of the environment after prospecting has taken place. Menar will provide for the closure liability associated with the project through the purchase of a Bank Guarantee as allowed by the Financial Provision for Prospecting, Exploration, Mining or Production Operations Regulations, with the Bank Guarantee provided to the DMRE following authorisation of the project.

17 Undertaking

The undertaken has been fully signed and completed at the end of Part B: EMPr.

18 Specific Information required by the competent Authority

18.1 Compliance with the provisions of sections 24(4) (a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998)

18.1.1 Impact on the socio-economic conditions of any directly affected person

Impact is seen as minimal if EMPr is applied to prospecting activities and prospecting sites. Impacts such as veld fires, safety and security of landowners and occupants were envisaged during the public participation process. The impact can be managed/mitigation through the correct implementation of the EMPr. Furthermore, drilling sites, access routes and camp sites are to be finalised in conjunction with the landowner / user and an agreement reached before prospecting activities commence on site. The proposed prospecting activities is not anticipated to result in a change in character of the site and due to the limited footprint of invasive prospecting activities the current land use (grazing by livestock and game) can continue concurrently.

18.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act

A range of heritage sites occur in the wider region, and similar sites should be anticipated within the application area. Every site is relevant to the Heritage Landscape, but it is projected that only a few sites in the study area could have conservation value. The following conclusions have been taken from the HIA Desktop Study:

- Several Stone Age occurrences/sites have been recorded in the region. No studies have been conducted on the earmarked properties or immediate vicinity of the MRA footprints. The possibility of open-air Stone Age sites/occurrences in the development area exists. Therefore it is recommended that a site-specific field study of the impact to heritage resources must be undertaken, after the prospecting right has been issued and final locations of the boreholes have been determined.
- Various colonial/historical structures have been recorded in a ± 50 km radius of the development area that represents the regional colonial farming history of the region. No studies have been conducted on the property or immediate vicinity of the development footprints. It is recommended that a site-specific field study should be undertaken, after the prospecting right has been issued and final locations of the boreholes have been determined.
- Formal and informal graveyards, as well as pre-colonial graves, occur widely across southern Africa. It is commonly recommended that these sites are preserved from development. Once the prospecting right has been issued, and the final locations of the boreholes have been determined, a field survey and public consultation should be undertaken to ensure that no gravesites are present in the vicinity. Any graveyard(s), grave(s) or burial(s) would likely be of High Local Significance. It is recommended that graves are avoided with the inclusion of a 50 m buffer/safety zone.

- Due to the lack of previous Heritage Assessments within the area, the probability of archaeological sites/occurrences located in the development area is considered highly probable. A visual guide or rudimentary Chance Finds Protocol has been developed for this project. It is recommended that the developer refers to it during the planning process to help establish the exact locations of the boreholes.
- Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground-truthing and/or specialist mitigation are required. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area as the igneous rocks underlying the site are not fossiliferous. It is therefore recommended that the project be exempt from a full Paleontological Impact Assessment (Butler 2021).

18.2 Other matters required in terms of sections 24(4) (a) and (b) of the Act

Section 24(4) (b) (i) of the Act requires the EAP to conduct an investigation of the potential consequences of impacts of alternatives to the activity on the environment and assessment of the significance of those potential consequences. This has been addressed in Section 10 above. As stipulated, the site is delimited by the prospecting rights area and the extent of the resource. Invasive prospecting area will be delimited by the data from non-invasive techniques. The approach to prospecting is environmentally responsible (by completing non-invasive techniques first) and an industrial norm (drilling is still an acceptable means for resource evaluation as required for the Mining Right Application).

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

A BAR Process was followed according to GNR 326 Regulation 19 of the NEMA EIA Regulations 2014, as amended, in support of the Prospecting Right and Environmental Authorisation application and the EMPr is thus subject to the requirements of Appendix 4 of the NEMA EIA Regulations of 2014.

The implementation of this EMPr is a requirement in terms of NEMA and will be a condition of the Environmental Authorisation, issued by the Competent Authority. The Applicant and contractors must therefore familiarise themselves with the contents of this document because failure to comply with the commitments made will constitute an offence which can lead to penalties and/or legal action.

The EMPr should form an integral part of the contract documents to ensure that the biophysical, cultural and socio-economic environment is not adversely affected by the potential impacts resulting from the different aspects of the proposed prospecting operation. It should further be noted that the EMPr is not static, as allowances have been made for it to evolve in the future.

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1 Details of EAP

The Applicant appointed uKhozi Environmentalists (Pty) Ltd as an independent environmental consultant, to facilitate the Environmental Authorisation process. This EMPr was compiled by Thomas Olivier and reviewed by Inus de Wit. The contact details, qualifications and professional affiliations of the Environmental Assessment Practitioners are presented in the Table below. Refer to Part A: Section 3 for more details regarding the Project Team.

Table 1: Contact details of EAP

Name	Role	Qualifications	Professional Affiliations	Years Experience	Contact details
Thomas Olivier	Project Manager	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis	EAPASA Registered EAP (Number: 2020/2020/1162)	11	Email: tommy@ukhozi-enviri.co.za Tel: 082 521 8870
Inus de Wit	Alternate project manager	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis Master of Science (MSc) Degree in Water Management	EAPASA Registered EAP (Number: 2019/417)	9	Email: inus@ukhozi-enviro.co.za Tel: 082 451 1615

2 Description of the Aspects of the Activity

The prospecting right application has been submitted to prospect for iron ore and manganese over Portions 1, 2, 3, 4 and the Remaining Extent (RE) of the Farm Gnoolooma 416, Portions 1 & the RE of the Farm Plumstead 418, Portions 1 & the RE of the Farm Melton 420, Portions 1 & the RE of the Farm Diepwater 361 and the RE of the Farm La Rochelle 359, situated in the Tsantsabane and Joe Morolong Local Municipalities, Northern Cape Province. The proposed activities on site will be approached in phases, and will include:

Phase 1: Non-invasive prospecting

Non-invasive prospecting activities will consist of:

- A desktop study and literature review.
- Obtaining historical borehole data and resource information.
- Feasibility studies.
- Geophysical site visit and survey will be conducted by a field geologist and a geophysics team; and
- Data will be extracted and plotted into geological maps identifying areas for invasive prospecting for resource determination.

Phase 2: Invasive prospecting:

The proposed timeframe associated with the invasive prospecting is expected to be no more than 3 years. Invasive prospecting activities will consist of:

- Establishment of drill site and temporary contractors' yard. This will involve:
 - Clearing of vegetation for sumps and the drill entrance point
 - Earth sumps for water recycling
 - Laydown area for drill rods, fuel and ablution facilities (chemical toilets)
 - Site office
 - Parking area
- Core drilling. (the number of boreholes required can only be finalised once the non-invasive prospecting as detailed above is completed; however, preliminary positions have been proposed in Figure 1 below). Cores will be sampled and assessed by the on-site geologists and core logs will be maintained.
- Rehabilitation of boreholes. Casing will be removed from the borehole on completion thereof and the borehole sealed in accordance with "Standard Borehole Sealing Procedure" i.e.: each borehole certificated in terms of this procedure. Sealing will include:
 - Removing casing- if casing is to be removed, a specialist borehole contractor will advise on appropriate techniques and associated risks.
 - Backfilling- boreholes should be backfilled with clean uncontaminated material. Backfilled hole should be similar to surrounding strata.
 - Seal top of borehole- backfilled borehole should be compiled with an impermeable plug to prevent entry of potentially contaminated surface run-off or other liquids.
 - Record details- the depths and position of each layer of backfilling and sealing material.
- Drill rig, machinery, and vehicle movement. Existing farm roads and tracks will be utilised as far as possible however, where a road does not exist temporary access roads will be established to access a drill site after consultation with the landowner. The type of access

envisaged is limited to removal of large rocks and disturbance of vegetation. Such access roads may also require 'light' grading to allow the movement of surface mobile vehicles.

- **Water Management.** Process and potable water will be obtained from existing lawful users, an irrigation board or water services provider. Two sumps (delivery sump & settling sump) will be installed around the drilling rigs to collect water during the drilling process and settle out the suspended solids, for recycling of the water. This water will be re-used on the rig. It is recommended that the sumps at the drill sites be plastic lined to limit the amount of seepage of process water.
- **Ablution Facilities.** Portable chemical toilets will be provided within close proximity of the drilling site and serviced on a regular basis by the service provider.
- **Domestic Waste Management -** The drilling team will be housed off site in the nearest town. No accommodation will be provided on site. Specific areas for lunch breaks will be provided and closed bin will be provided to collect domestic waste which will be removed and disposed of by the drilling contractor at a suitable site.
- **Safety and Security -** Security staff will be employed once equipment has been established on site.
- **Storage and Handling of Dangerous goods -** During the drilling activities there will be a storage area where limited amount of diesel and oil will be stored on site in above ground storage tanks. The tanks capacity will be less than 30m³. The storage area shall be securely fenced and all hazardous substances and stocks such as diesel, oils, detergents, etc., shall be stored therein. Drip pans, a thin concrete slab, or a facility with PVC lining, shall be installed in such storage areas with a view to prevent soil and water pollution.

Phase 3: Analytical assessment of prospecting data

Data will be assessed in a pre-feasibility study to determine resource estimates to commence with prefeasibility and feasibility assessments for mine planning and Mining Right Application processes.

In terms of NEMA and its EIA Regulations the abovementioned activities trigger the listed activities presented in Table 2 below and is thus subject to a Basic Assessment ("BA") and EMP.

Table 2: Applicable listed activities

Listing notice	Activity No	Description of activity
GN. R 327 (Listing Notice 1)	20	<i>Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures, and earthworks, directly related to prospecting; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)]</i>
GN. R 327 (Listing Notice 1)	27	<i>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation</i>
GN. R 324 (Listing Notice 3)	12	<i>The clearance of an area of 300 square meters or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i>

3 Composite Map

Refer to Figure 1 below which shows the preliminary location of the prospecting boreholes in relation to the 100m and 500m buffers around the drainage lines and wetlands, respectively. It must be noted that during the site inspection it was confirmed that there are no rivers or streams present but only scattered depression wetlands inside the application area.

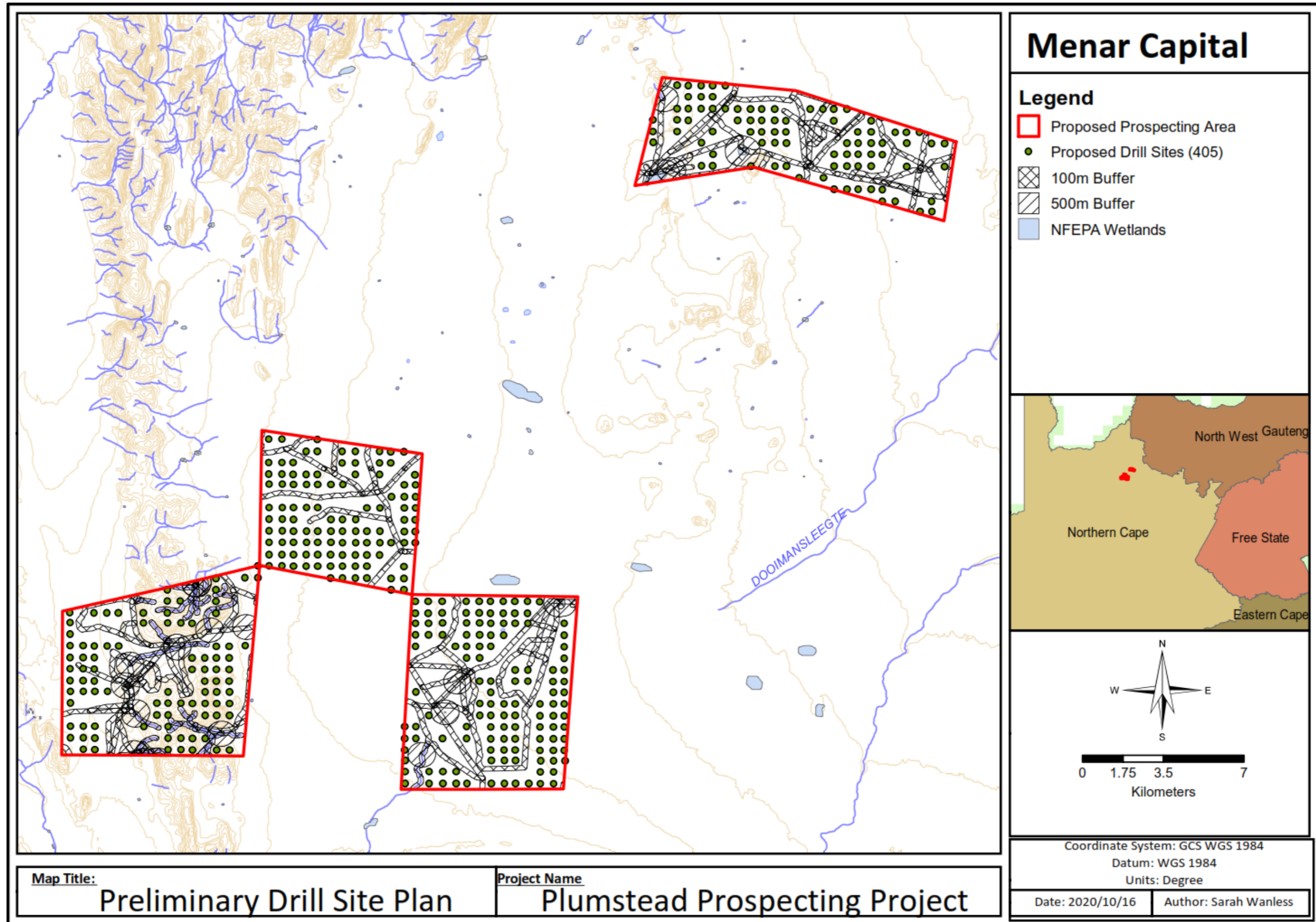


Figure 1: Composite Map

4 Description of impact management objectives including management statements

The following EMPr has been structured in such a manner as to provide a basis for an Environmental Management Systems (EMS) for the prospecting operation. The purpose of this Environmental Management Programme Report (EMPr) is to serve as an action plan for implementation of mitigation and management measures to ensure satisfactory environmental (biophysical, cultural and socio economic) management. More specifically, the objectives of the EMPr are to guide and control the invasive prospecting activities and should be to ensure that appropriate environmental management measures and monitoring requirements are implemented by Menar.

4.1 Determination of closure objectives

Post-closure land use must continue as prior to prospecting. The specific closure objectives for each environmental aspect that must be met are presented in Table 3 below. Refer to the Closure Plan attached as Appendix 5 for more detail.

Table 3: Closure objectives per environmental aspect

Environmental aspect	Closure objective
Geology	All boreholes must be sealed and the disturbed area stabilised.
Topography	The final elevation of drilled areas must be free draining.
Soils	Topsoil must be replaced over the disturbed area to restore vegetation growth and limit the risk of erosion.
Land capability and use	The disturbed areas must return to self-sustaining veld suitable for animal breeding and feeding practices.
Vegetation	Prevent the establishment and spreading of alien plant species on the disturbed areas.
Animal life	A non-aggressive environment, suitable to the natural re-habitation of indigenous animal life.
Surface water and aquatic ecosystems	Ensure that the surface water leaving the site is of acceptable quality, and enable through landscaping, as much as possible of the storm water runoff to flow off the rehabilitated areas without undue delay, to minimise infiltration without causing unacceptable erosion.
Groundwater	Ensure no contamination of the local ground water systems. Where water strikes are encountered the boreholes can be equipped as abstraction boreholes by the landowner if the necessary authorisations are obtained where required.
Air quality	To have rehabilitated the disturbed areas such that dust levels return to pre-drilled state through adequate vegetative cover.
Noise	The noise levels must return to the pre-drilled situation, typically in the region of 40 dB for rural areas.
Visual	The rehabilitated areas must resemble the pre-drilled landscape and sense of place.

4.2 Process to manage environmental impacts

Significant environmental aspects and their associated environmental impacts were identified for the proposed prospecting operation as part of the impact assessment. Consideration was given to the Impact Mitigation Hierarchy in terms of the impact management objectives. The main objective is to focus on avoiding/preventing the impact from occurring and where this is not possible to minimize the significance of the impact. Where the impact cannot be avoided and or minimized, measures have been included that focusses on the repair/restore of the environmental aspect. The identified impacts will be mitigated by implementing the measures outlined in Section 5 below. The mitigation measures aim is to prevent emergencies and minimise environmental risks and impacts as far as possible.

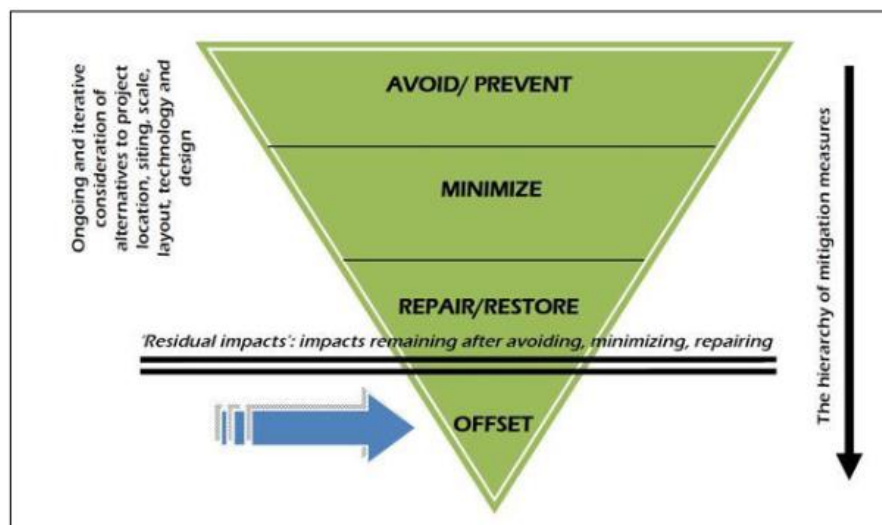


Figure 2: Schematic representation of the Mitigation Hierarchy process

4.3 Volumes and rate of water use required for the operation

10 000 – 20 000 litres of water will be used per day for the drilling operation (2 rigs at a time). Water will be sourced off site from existing lawful water users or water service providers.

Water will also be brought onto site for potable use, this is estimated at 20 litres per crew/day.

4.4 Has a water use licence has been applied for?

No water use licence or water use registration has been applied for. The project aims to utilise water from existing lawful users or water services provider. Should water be required from a water resource if the above is unsuccessful a water use registration will be applied for.

A buffer will be established, in which no activities will be allowed, around the regulated area of a watercourse to limit the need for 21(c) or 21(i) water use licence or registration.

5 Impacts to be Mitigated, Management Actions, Outcomes and Standards to be Achieved

This section lists the potential impacts per environmental aspect for each of the proposed prospecting activities. For each impact, a set of mitigation/management measures have been identified along with the time period for implementation, performance criteria (compliance with standards) and standards to be achieved. The information contained in this section forms an integral part of this EMPr and must be adhered to at all times.

Table 4: Environmental Management Program

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
Geology							
Cracks and disruption to geological layers.	Core drilling	20m ² per borehole	Plan location of invasive prospecting sites properly to avoid sensitive geological features. Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources.	Operation	Once-off sign-off of drill sites or amendments to these plans before any activities take place for the duration of prospecting operations.	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation. Standard industry practises.	The drilling sites must be positioned by a geologist to ensure that it is not above any weak geological strata.
Topography							
Localised dips in topography if boreholes collapse after material is replaced.	Rehabilitation of boreholes	20m ² per borehole	Inspect and take immediate action to repair any dips by levelling and grading the disturbed area.	Decommissioning and closure	Once-off inspection of drilled boreholes after substantial rainfall	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	Restore natural catchment drainage patterns as far as possible.
Soils							
Compaction of soils	Establishment of drill sites and contractor's camp	625m ²	Keep disturbed area as small as possible. Rip compacted soils.	Construction Operation	Weekly inspections of the drill site, contractor's camp and surrounding area for the duration of prospecting activities	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	Reduce compaction of soil and maintain existing arable land capability.
	Drill rig, machinery, and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width	Remain in designated roads / routes / activity areas. Where not possible, routes must be properly planned to reduce disruption to soil as far as possible.	Construction Operation	Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations.		Prohibit movement of machinery outside designated areas.
Loss of soil resource due to erosion	Water management	10m ²	Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary. Effective managing of the topsoil by covering or reseeded the stockpiles to avoid erosion. Any erosion gullies must be remediated immediately.	Operation	Weekly inspections of the drill site, contractor's camp and surrounding area for the duration of prospecting activities	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	Reduce erosion of soil and maintain existing arable land capability.
Hydrocarbon contamination of soils	Core drilling	20m ² per borehole	Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. Spill kits must be available on site and personnel trained to utilize these to clear spills immediately.	Construction Operation Decommissioning and closure	Weekly inspections of the vehicles and storage area for the duration of prospecting activities.	General duty of care in terms of NEMA & NEMWA	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements.
	Drill rig, machinery and	Farm roads will be used as far as possible. Temporary Access Road	Follow the equipment's operation and maintenance procedures and all vehicles				

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
	vehicle movement	(if required) will not exceed 3.5m in width	must undergo periodic maintenance and inspection.				
	Storage and handling of dangerous goods	<30m ³	Equip vehicles on site with drip trays and place drip trays under leaky equipment.				
Potential contamination of soils with sewage	Ablution facilities	Portable chemical toilets will be used	Inspect, repair, and replace any damaged toilets. Appoint the necessary reputable contractor to manage portable toilets. Implement proper housekeeping and hygienic practices.	Operation	Weekly inspections of portable toilet facilities for the duration of prospecting activities.	General duty of care in terms of NEMA & NEMWA	Reduced bacterial contamination and associated health effects on neighbouring areas.
Potential contamination of soils with indiscriminately dumped waste or littering.	Domestic waste management	Portable closed bins will be used	Domestic waste must be collected in waste bins that are located on site. The waste bins must be marked clearly indicating what waste must be disposed of in what bin. Employees must be encouraged to re-use, recycle, and reduce waste where possible. No burning of domestic waste may be done on site. Appoint reputable contractors for the removal and disposal of general waste at a licensed facility.	Operation	Weekly inspections of the waste bins for the duration of prospecting activities.	Dispose waste generated by the project according to good practise waste management principles.	Attain "cradle to grave" management of waste on site.
Soil replacement and re-vegetation of disturbed areas	Rehabilitation of boreholes	20m ² per borehole	Rehabilitation must be on-going as soon as drilling results are completed. Replaced soil should be vegetated as soon as possible, where required, to prevent erosion and establishment of weed species. Soil compaction should be avoided as far as possible but where not compacted soils must be ripped to correct any compaction	Operation, decommissioning and closure	Monthly once invasive prospecting commences for the duration of prospecting. Once-off inspection of rehabilitated sites after substantial rainfall.	General duty of care in terms of NEMA and MPRDA rehabilitation standards.	Promote aeration, water infiltration and the establishment of vegetation.
Land capability and use							
Temporary change in land use	Establishment of drill site and contractor's camp	20m ² per borehole	Keep the disturbed area as small as possible.	Operation	Weekly inspections of the drill site, contractor's camp and surrounding area for the duration of prospecting activities	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	Maintain existing land capability.
Permanent change of land use back to pre-drilled state	Rehabilitation of boreholes	625m ² per site	No mitigation necessary – impact is positive	Decommissioning and closure	N/A	General duty of care in terms of NEMA and MPRDA rehabilitation standards.	Restore natural catchment drainage patterns as far as possible.

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
							Restore land to arable land use.
Flora and Fauna							
Disturbance/damage to vegetation and subsequent disturbance to animal species	Establishment of drill sites and contractor's camp	20m ² per borehole	Plan location of drill sites properly to avoid sensitive features such as watercourses and rocky outcrops. Restrict vegetation clearance. If necessary, remove vegetation during periods of low rainfall or dry periods.	Operation	Weekly inspections of the contractor's camp and surrounding area for the duration of prospecting activities.	General duty of care in terms of NEMA, NWA, NFA and NCNCA and must be applied when necessary.	Preservation of protected species.
Alien plant infestation	Rehabilitation of boreholes		Remove alien and invasive species that may establish around prospecting sites. Clear all vehicles coming to site of any vegetative material.	Operation Decommissioning and closure	Monthly once invasive prospecting commences for the duration of prospecting. Once-off inspection of rehabilitated sites after substantial rainfall.	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	
Harm/disturbance to protected fauna and flora species	Core drilling		Survey prospecting sites for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. Relocate protected plant species for which permits are obtained rather than destroying species. Do not hinder, harm or trap animals.	Operation	Once-off sign-off of borehole locations or amendments to these plans before any activities take place for the duration of prospecting operations.	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	
	Drill rig, machinery, and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width	Survey any off-road routes to prevent damage to red data plants. Remain in designated roads / routes / prospecting areas.	Operation	Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations.	General duty of care in terms of NEMA.	
Surface water and aquatic ecosystems							
Disturbance to streams and wetlands if activity proceeds indiscriminately.	Core drilling	20m ² per boreholes	No prospecting activities can take place within 100m of streams and/or 500m of wetlands unless authorisation is obtained to do so.	Operation	Once-off sign-off of drill sites or amendments to these plans before any activities take place for the duration of prospecting operations.	NWA will be complied with to ensure that the quantity, quality, and reliability of water required to maintain the ecological function on which human depends is maintained.	Prevent disturbance to wetlands and riparian areas.

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
	Drill rig, machinery, and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width			Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations.		
Hydrocarbon contamination of surface water through contaminated runoff.	Core drilling	20m ² per boreholes	Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site.	Operation	Weekly inspections of the vehicles and storage area for the duration of prospecting activities.	NWA will be complied with to ensure that the quantity, quality, and reliability of water required to maintain the ecological function on which human depends is maintained.	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements.
	Drill rig, machinery and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width	Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made.				
	Storage and handling of dangerous goods	<30m ³	Equip vehicles on site with drip trays and place drip trays under leaky equipment. Spill kits must be available on site in the event of a spillage. Adhere to safe work procedure when refuelling vehicles and machinery. Hydrocarbons must be stored within portable bund tanks.	Operation	Weekly inspections of hydrocarbon storage areas for the duration of prospecting activities.	General duty of care in terms of NEMA & NWA.	
Potential contamination of surface water resources with process water from the sumps	Water management	10m ²	Use biodegradable lubricants and fluids/polymers. Maintain buffer zones around watercourses as ecological corridors and refuges.	Operation	Monthly visual inspection of the active prospecting areas.	NWA will be complied with to ensure that the quantity, quality, and reliability of water required to maintain the ecological function on which human depends is maintained.	To keep, as far as possible, water of differing qualities separate within prospecting area, so as to minimise the contamination of clean runoff and surface water
Potential contamination of surface water with sewage	Ablution facilities	Portable chemical toilets will be used	Inspect, repair, and replace any damaged toilets. The portable toilets must be managed by a reputable contractor, emptied on a regular basis as needed.	Operation	Weekly inspections of portable toilet facilities for the duration of prospecting activities.	General duty of care in terms of NEMA & NEMWA	Reduced bacterial contamination and associated health effects on neighbouring areas.
Potential contamination of surface water with indiscriminately dumped waste or littering.	Domestic waste management	Portable closed bins will be used	Toilets must be maintained in hygienic state. Inspect and clear all litter and waste.	Operation	Weekly inspections of the waste bins for the duration of prospecting activities.	Dispose waste generated by the project according to good practise waste management principles.	Attain "cradle to grave" management of waste on site.

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
			Appoint reputable contractors for the removal and disposal of general waste at a licensed facility.				
Groundwater							
Cracks and disruption to aquifers.	Core drilling	20m ² per borehole	Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources. Limit development to target rocks and reduce exposure of aquifer rocks.	Operation	Once-off sign-off of drill sites or amendments to these plans before any activities take place for the duration of prospecting operations.	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	The drilling sites must be positioned by a geologist to ensure that it is not above any weak geological strata.
Potential hydrocarbon and chemical contamination of groundwater resources.	Core drilling		Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. Use percussion drilling to drill through the clay and just before the rift switch over to diamond drilling to avoid the use of chemicals.	Operation	Weekly inspections of the vehicles and storage area for the duration of prospecting activities.	NWA will be complied with to ensure that the quantity, quality, and reliability of water required to maintain the ecological function on which human depends is maintained.	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements.
	Drill rig, machinery and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width	Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made.		Weekly inspections of hydrocarbon storage areas for the duration of prospecting activities.	General duty of care in terms of NEMA & NWA.	
	Storage and handling of dangerous goods	<30m ³	Equip vehicles on site with drip trays and place drip trays under leaky equipment. Spill kits must be available on site in the event of a spillage. Adhere to safe work procedure when refuelling vehicles and machinery. Hydrocarbons must be stored within portable bund tanks.				
Potential contamination of groundwater through process water seepage	Water management	20m ² per borehole	Line sumps with the appropriate lining system. Isolate porous or highly transmissive groundwater zones through capping or grouting to prevent clean groundwater ingress or recharge of contaminated water.	Operation Decommissioning	Monthly visual inspection of the active prospecting areas.	NWA will be complied with to ensure that the quantity, quality, and reliability of water required to maintain the ecological function on which human depends is maintained.	Prevent groundwater contamination through seepage.

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
Potential contamination of groundwater with indiscriminately dumped waste or littering.	Domestic waste management	Portable closed bins will be used	Domestic waste must be collected in waste bins that are located on site. Employees must be encouraged to re-use, recycle, and reduce waste where possible. No burning of domestic waste may be done on site. Appoint reputable contractors for the removal and disposal of general waste at a licensed facility.	Operation	Weekly inspections of the waste bins for the duration of prospecting activities.	Dispose waste generated by the project according to good practise waste management principles.	Attain "cradle to grave" management of waste on site.
Irresponsible use of water and water wastage	Core drilling	20m ² per borehole	Recycle water from the sumps to re-used on the rig. Source water from existing lawful water use or water service provider. Investigate whether other drilling methods (i.e., air flush – does not use water for drilling) is feasible	Operation	Monthly visual inspection of the active prospecting areas.	NWA will be complied with to ensure that the quantity, quality, and reliability of water required to maintain the ecological function on which human depends is maintained.	Use clean water responsibly.
Air quality							
Emissions into the atmosphere through use of diesel-powered equipment, machinery, and vehicles.	Core drilling	20m ² per boreholes	Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment.	Operation	Weekly inspections of the vehicles and machinery for the duration of prospecting activities.	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.
	Drill rig, machinery and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width					
Increase in dust fall out	Establishment of drill sites and contractor's camp	20m ² per boreholes	Dust suppression procedures should be implemented to reduce and control dust on the access road and drill site.	Operation	Weekly inspections of the drill site, contractor's camp and access roads for the duration of prospecting activities.	General duty of care in terms of NEMA.	Dust fallout will be managed to not exceed 600mg/m ² /day.
	Drill rig, machinery and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width	Control the speed of operational vehicles. The drill rig must remain on site as far as possible.				
Noise							
Increase in ambient noise levels.	Core drilling	20m ² per boreholes	Drilling must be done in consultation with the landowners to ensure that work schedules are communicated to them. Prospecting activities must be conducted during normal working hours (Monday – Friday - 7am – 17pm)	Operation	Weekly inspections of the drill site, contractor's camp, and access roads for the duration of prospecting activities	General duty of care in terms of NEMA.	Prevent nuisance noise to nearby landowners / users.
	Establishment of drill sites and contractor's camp	625m ² per site					
	Drill rig, machinery and	Farm roads will be used as far as possible.					

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
	vehicle movement	Temporary Access Road (if required) will not exceed 3.5m in width	Implement noise control measures on noisy equipment.				
Visual							
Visual intrusion and disturbance to the sense of place.	Core drilling	20m ² per boreholes	Keep disturbed areas as small as possible.	Operation	Weekly inspections of the drill site and site camp for the duration of prospecting activities	Dispose waste generated by the project according to good practise waste management principles.	Attain "cradle to grave" management of waste on site.
	Establishment of drill sites and contractor's camp	625m ² per site	Keep the drill site neat, clean, and organised in order to maintain a tidy appearance. Remove waste off site as soon as possible or place it in closed bins in order to keep the site free from additional unsightly elements.				
Improvement of visual quality and sense of place	Rehabilitation of boreholes	20m ² per borehole	Rehabilitation must be on-going as soon as drilling results are completed.	Decommissioning	Monthly once invasive prospecting commences for the duration of prospecting. Once-off inspection of rehabilitated sites after substantial rainfall.	General duty of care in terms of NEMA. MPRDA rehabilitation standards.	Restore land to arable land use.
Heritage resources							
Damage or destruction of any heritage resources.	Core drilling	20m ² per boreholes	Establish a 50m buffer/safety zone around graves. Implement the Chance Find Protocol during the planning process to help establish the exact locations of the boreholes.	Operation	Once-off sign-off of drill site locations and route plans or amendments to these plans before any activities take place for the duration of prospecting operations.	SAHRA will be complied with regarding permits for destruction and relocation or management of heritage sites, and applicable buffers.	Preservation of heritage sites.
	Establishment of drill sites and contractor's camp	625m ² per site					
	Drill rig, machinery and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width					
Socio economic, health and safety							
Creation of employment opportunities	Core drilling	20m ² per boreholes	Appoint local contractors where possible.	Operation	Once off before prospecting activities commence	N/A	Transparent communication with job seekers.
Damage to existing infrastructure incl. gates, roads, and fences	Drill rig, machinery and vehicle movement	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width	Remaining in designated roads /routes. If infrastructure were damaged by the drill team the Applicant must repair the damages (i.e., grade farm roads that have been damaged due to use by prospecting team). The drilling team must always close the farm gates after entering.	Operation Decommissioning and closure	Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations. Once off inspection of routes after activity in the area has ceased.	General duty of care in terms of NEMA	High safety standards on site with reduced safety risks

Potential Environmental Impact	Activity	Size and scale of disturbance	Mitigation Measures	Phase	Time period for implementation	Performance criteria (compliance with standards)	Standards to be achieved
Increase potential for road accidents	Drill rig, machinery and vehicle movement		<p>The drilling contractor's personnel will always adhere to the speed limit.</p> <p>No transporting will occur after sunset.</p> <p>Vehicles will be in roadworthy condition with reflective strips to make them clean and visible for other road users.</p> <p>Intersections with main tarred roads will be clearly signposted.</p>	Operation	Daily for the duration of prospecting operations	General duty of care in terms of NEMA	Leave site without any incidents, safety risks, fires and theft to surrounding farmers.
Theft and safety risk resulting in the decrease in quality of life	Influx of people into the area	N/A	<p>Ensure farm gates are always closed.</p> <p>No employee will be allowed to loiter around farms.</p> <p>The drill contractor must monitor the whereabouts of the drill team.</p>	Operation	Daily for the duration of prospecting operations	General duty of care in terms of NEMA	
Increase risk of veld fires	Influx of people into the area	N/A	<p>No employees will be allowed to make any open fires on the farms or adjacent land.</p> <p>Cigarette butts may not be thrown in the veld, but must be disposed of correctly.</p> <p>Contractors must ensure that basic fire-fighting equipment and suitably qualified/experienced personal are always available on site.</p> <p>Fire extinguishers shall be placed at working areas and all areas where hazardous substances are kept.</p> <p>The drilling contractor must liaise with the local Fire Protection Agency (FPA) before drilling commences.</p>	Operation	Daily for the duration of prospecting operations	Adhere to the area's safety protocols.	

6 Financial Provision

6.1 Description of the closure objectives and extent to which they align with the baseline characterisation

The closure vision for the proposed project is to establish a safe, stable and non-polluting post-prospecting landscape that can facilitate integrated, self-sustaining and value generating opportunities, thereby leave a lasting positive legacy. Closure objectives identified include:

6.1.1 Geology

Ensure that all the boreholes are plugged and sealed. Rehabilitation of each of the drilling sites will be focus on the plugging of the hole and stabilisation of the disturbed area.

6.1.2 Topography

Ensure that the final elevation of rehabilitated areas is free draining. The localised nature of the prospecting activities means that attaining objective will result in restoration of baseline conditions.

6.1.3 Soils and land capability

Ensure that topsoil (with vegetation clods where applicable) are replaced to the surface of rehabilitated drilled sites to maintain arable land capability and reduce risk of erosion. By removing soil clods with vegetation, the baseline conditions will be minimally altered and will recover fully to baseline condition over a short to medium term duration.

6.1.4 Surface water and aquatic ecosystems

Ensure no sedimentation and/or chemical contamination of the surrounding surface water systems. Prevent disturbance to depression wetlands and maintain current wetland status and maintain ecological corridors associated with watercourses found within the application area.

6.1.5 Groundwater

Ensure no contamination of ground water or disturbance to groundwater aquifer. Where water strikes are encountered the boreholes can be equipped as abstraction boreholes by the landowner if the necessary authorisations are obtained where required.

6.1.6 Flora and Fauna

Encourage indigenous vegetative growth over the disturbed areas to prevent alien plant infestation. The aim is to reduce introduction of new species or spread of existing species and to preserve protected species in situ as far as possible.

6.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties

Post closure land use (PCLU) is determined in consultation with stakeholders so that the PCLU meets the requirements of the stakeholders, within the context of the closure plan. This activity is undertaken for the area affected by prospecting activities and integrates stakeholder requirements with risk mitigation. The draft BAR & EMP was made available for a review and comment period. The comments received during this period are addressed in this final report.

6.3 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure

This application is for a prospecting right. Please refer to Figure 1 above for the preliminary position of the prospecting boreholes (please note that these are subject to change following the outcome of the Geophysics survey). Each individual drill site will impact a maximum footprint of 20m², which will be rehabilitated as soon as the necessary data is obtained.

The rehabilitation actions intended to be undertaken at the end of the life of the proposed prospecting activities are described in the Closure Plan attached as Appendix 5.

6.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives

The rehabilitation plan has been compiled with the aim to meet the primary closure objective which is to establish a safe, stable, and non-polluting post-prospecting landscape. By implementing the rehabilitation activities in line with the plan the Applicant should be able to restore the affected areas to the pre-prospecting condition.

6.5 Quantum of the financial provision required to manage and rehabilitate the environment

An applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, exploration and mining or production operations, as contemplated in the Mineral and Petroleum Resources Development Act, 2004, (MPRDA) and MPRDA Regulations to the satisfaction of the Minister responsible for mineral resources.

The environmental liability only focussed on the proposed prospecting activities and was calculated using the DMRE's rule-based assessment (Table 5) and is estimated to be R235 614.75 including VAT and contingencies. The closure components and size of disturbed areas provided by Menar in the Prospecting Work Program (PWP) was used to calculate the financial provision. The accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. Refer to Appendix 5 for more detail.

Table 5: Quantum of Financial Provision

Applicant: Menar Capital (Pty) Ltd		Location: Kathu Magisterial District, Northern Cape Province						
Evaluators: uKhozi Environmentalists: Tommy Olivier		Date: June 2021						
		Risk Class: C ; Area Sensitivity: High						
No.	Description	Unit	A		B	C	D	E=A*B*C*D
			Quantity	2005 based master rate	Revised and escalated master rate 2024	Multiplication factor	Weighting factor 1	Amount (Rands)
			Step 4.5	Step 4.3		Step 4.3	Step 4.4	
1	Dismantling of processing plant and related structures (including overland conveyors).	m ²	0.00	R 6.82	R 16.41	1.00	1.10	R 0.00
2(A)	Demolition of steel buildings and structures .	m ²	0.00	R 95.00	R 228.65	1.00	1.10	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m ²	0.00	R 140.00	R 336.95	1.00	1.10	R 0.00
3	Rehabilitation of access roads (8m wide)	m	0.00	R 17.00	R 40.92	1.00	1.10	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	R 165.00	R 397.12	1.00	1.10	R 0.00
4(B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R 90.00	R 216.61	1.00	1.10	R 0.00
5	Demolition of housing and/or administration facilities .	m ²	0.00	R 190.00	R 457.29	1.00	1.10	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0.00	R 96 700.00	R 232 738.88	1.00	1.10	R 0.00
7	Sealing of shafts, adits and inclines	m ³	0.00	R 51.00	R 122.75	1.00	1.10	R 0.00
8(A)	Rehabilitation of overburden and spoils - discard dump and slurry dam	ha	0.00	R 66 400.00	R 159 812.42	1.00	1.10	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic salt-producing waste)	ha	0.00	R 82 700.00	R 199 043.49	1.00	1.10	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0.00	R 240 200.00	R 578 116.63	0.81	1.10	R 0.00
9	Rehabilitation of subsided areas	ha	0.00	R 55 600.00	R 133 818.84	1.00	1.10	R 0.00
10	General surface rehabilitation	ha	0.873	R 52 600.00	R 133 818.84	1.00	1.10	R 128 506.23
11	River diversions	ha	0.00	R 52 600.00	R 133 818.84	1.00	1.10	R 0.00
12	Fencing	m	0.00	R 60.00	R 144.41	1.00	1.10	R 0.00
13	Water management	ha	0.873	R 20 000.00	R 48 136.27	0.33	1.10	R 15 254.34
14	2 years of maintenance & aftercare	ha	0.873	R 7 000.00	R 16 847.70	1.00	1.10	R 16 178.85
15 (A)	Specialist study detailed (closure plan)	Sum	0		N/A	1.00	1.10	R 0.00
15(B)	Specialist studies	ha	0.00		N/A	1.00	1.10	R 0.00
Sum of items 1 to 15 above								R 159 939.41
Multiply by Weighting factor 2 (Step 4.4) = SUBTOTAL 1							1.05	R 167 936.38
1	Preliminary and General				Add 6% of Subtotal 1 if Subtotal 1 R 100 000 000.00			N/A
					Add 12% of Subtotal 1 if Subtotal 1 R 100 000 000.00			R 20 152.37
2	Contingencies				Add 10% of Subtotal 1			R 16 793.64
			SUB TOTAL 2: (sum of management (P's & G's) and contingency)					R 36 946.00
			SUB TOTAL 3 (SUBTOTAL 1 + SUBTOTAL 2)					R 204 882.39
							15%	R 30 732.36
			GRAND TOTAL: (Subtotal 3 plus VAT)					R 235 614.75

6.6 Confirm that the financial provision will be provided as determined

Menar will provide for the closure liability associated with the project through the purchase of a Bank Guarantee as allowed by the Financial Provision for Prospecting, Exploration, Mining or Production Operations Regulations, with the Bank Guarantee provided to the DMRE following authorisation of the project.

7 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme

Regular monitoring of all the environmental management measures and components shall be carried out by the holder of the prospecting right in order to ensure that the provisions of this EMPr are adhered to. Environmental management and monitoring will be conducted where needed by in-house Environmental Managers. Furthermore, an access agreement will be arranged with the directly affected landowners before invasive prospecting activities commence. During this arrangement, the drilling contractor's foreman will introduce himself to the landowner and establish a direct communication channel between the parties through which non-compliances can be reported and addressed. The access agreement will also be used to ensure that the drilling contractor is aware of the EMPr commitments and consequences if these aren't met.

The anticipated monitoring program is provided in Table 6 below.

The recommended management options have been listed below:

- Provide an updated layout plan at the prospecting site indicating the final locations of the proposed drill holes.
- Demarcating each drill site to ensure activities do not take place outside this area.
- Effective managing of the topsoil by covering or reseeding the stockpiles to avoid erosion.
- Use existing roads as far as possible and if new roads need to be established it must be done in consultation with the landowner.
- Implement dust control during dry and windy days.
- Temporary toilet facilities, wastewater and refuse disposal areas must be established.
- Maintenance of vehicles should take place off site.
- Prospecting operations need to be conducted at least 100m away from all riverbanks, wetlands and identified springs.
- Final disposal of domestic and hazardous waste must be done by a registered contractor.

Compliance reporting/submission of information.

Table 6: Monitoring Programme

Aspect	Area to be monitored	Impacts Requiring Monitoring	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency
Geology	Drilling sites	Cracks and disruption to geological layers.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. Geologist and site manager	1. Once-off sign-off of drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations.
Topography		Localised dips in topography if boreholes collapse after material is replaced.	1. Inspect drilled sites for localised dipping in topography or pooling of water	1. Environmental manager	1. Once-off inspection of drilled boreholes after substantial rainfall
Soils	Access routes	Loss of soil resource through compaction and contamination	1. Inspect all routes and prospecting sites for compacted soils, erosion, and degradation. 2. Ensure vehicles are within operation specifications to reduce risks of leaks.	1. Environmental manager 2. Environmental manager	1. Once off inspection of rehabilitated areas after substantial rainfall. 2. Weekly inspection of all vehicle and equipment service and maintenance logbooks for the duration of prospecting operations.
	Drilling sites		1. Ensure responsible material and soil handling and replacement. 2. Ensure area is clear of hydrocarbon spills.	1. Environmental manager with the contracting prospecting manager 2. Site manager	1. Monthly inspection once invasive prospecting commences for the duration of prospecting. 2. Weekly inspection of all vehicle and equipment service and maintenance logbooks for the duration of prospecting operations.
	Contractor's camp		1. Using biodegradable fluids/polymers. 2. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic. 3. Ensure that all machinery and vehicles are in proper working condition with no leaking and are fully equipped with portable bunding and drip trays with a spill kits on site.	1. Prospecting manager 2. Site manager 3. Site manager	1. Weekly inspections will be conducted during the duration of the prospecting activities
Flora	Access routes	Disturbance/damage to vegetation	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. Environmental manager and site manager	2. Once-off sign-off of drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations.
	Drill sites	Alien plant infestation	1. Where alien and invasive species, specifically those listed under NEMBA as Category 1b species, are noted, immediate eradication actions should be undertaken.	1. Environmental manager	2. Sporadic visual inspection of rehabilitated drill sites throughout prospecting operations
Surface water and aquatic ecosystems	Access routes	Disturbance to streams and wetlands if activity proceeds indiscriminately.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. Environmental manager and site manager	2. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations.
		Potential silt loading of surface water features.	1. Inspect all routes and prospecting sites for soil erosion or degradation.	1. Environmental manager	2. Monthly inspection once invasive prospecting commences for the duration of prospecting.
	Contractor's camp	Contamination of surface water resources	1. Ensure area is clear of hydrocarbon spills. 2. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic.	1. Site manager 2. Prospecting manager	1. Weekly inspection of all vehicle and equipment service and maintenance logbooks for the duration of prospecting operations.



Aspect	Area to be monitored	Impacts Requiring Monitoring	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency
					2. Weekly inspections of portable toilet facilities for the duration of prospecting activities.
Groundwater	Drill sites	Groundwater contamination	<ol style="list-style-type: none"> 1. Prevent any oil spills or leaks into borehole. 2. Lining sumps with the appropriate lining system 	<ol style="list-style-type: none"> 1. Site manager 2. Site manager 	<ol style="list-style-type: none"> 1. Daily check of oil leaks 2. Daily inspection of drilling areas.
Air quality	Access routes	Increase in dust fall out	<ol style="list-style-type: none"> 1. Visual inspection for billowing dust clouds. 	<ol style="list-style-type: none"> 1. Environmental manager 	<ol style="list-style-type: none"> 1. Sporadic visual inspection of billowing dust clouds from prospecting areas throughout prospecting operations.
Heritage resources	Drill site & Access routes	Damage or destruction of heritage resources.	<ol style="list-style-type: none"> 1. Preserve any heritage and cultural sites encountered. 2. If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal, and ash concentrations), fossils or other categories of heritage resources are uncovered during prospecting, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. 3. If unmarked human burials are discovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA. 4. If fossil remains are discovered during any phase of construction, either on the surface or exposed by excavations the Environmental Control Officer (ECO) in charge of these developments must report to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that correct mitigation can be carry out by a paleontologist. 	<ol style="list-style-type: none"> 1. Environmental manager 2. Environmental manager and SAHRA 3. Environmental manager and SAHRA 4. Environmental manager & SAHRA 	<ol style="list-style-type: none"> 1. Once-off survey for heritage sites on areas targeted for travel and / or drilling prior to activity in the area. 2. Weekly inspections of drilling areas.
Socio economic, health and safety	Access routes	Damage to existing infrastructure and increase potential for road accidents	<ol style="list-style-type: none"> 1. Maintain roads and intersections with public roads to reduce road incidences. 2. Ensure that on-site speed limits are enforced to reduce dust generation and road incidences. 	<ol style="list-style-type: none"> 1. Site manager 2. Site manager 	<ol style="list-style-type: none"> 1. Monthly inspections of all farm roads and intersections from the onset of operations for the duration of prospecting operations. 2. Sporadic speed inspections for the duration of prospecting operations.
	Working & hazardous substance storage areas	Increase risk of veld fires	<ol style="list-style-type: none"> 1. Ensure that all machinery and vehicles are in proper working condition with no leaking and are fully equipped with portable bunding and drip trays with a spill kits on site. 2. No open fires should be allowed on site and serviced fire extinguishers should be provided on site. 	<ol style="list-style-type: none"> 1. Site manager 2. Prospecting manager 	<ol style="list-style-type: none"> 3. Weekly visual inspection of the active prospecting areas will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.

8 Indicate the frequency of the submission of the performance assessment report

An annual performance assessment (or at a frequency stipulated in the EA) will be conducted by an external consultant throughout the life of prospecting as required under NEMA. This is conducted to assess the adequacy and compliance to the EMP, EA and the relevant legislation. Based on the findings of the external audit any significant variation in the prospecting activity that will require changes to the EMP will be updated and communicated with the department before such changes are implemented.

9 Environmental Awareness Plan

The section was compiled using the Applicant's environmental policies.

9.1 Manner in which the applicant intends to inform employees of any environmental risk

The Environmental Manager, Site Manager and Prospecting Manager must be conversant in environmental legislation, with special reference to the MPRDA, NEMA, NFA, NCNCA and the NWA.

The contractor / driller will be responsible for training its staff in terms of general environmental awareness. This will include basic training on the contents of this EMP; and will be conducted prior to commencement of prospecting activities. The aim of the environmental awareness training will be to highlight the potential impacts of the prospecting activities, and to highlight no-go areas.

The contractor / driller will ensure that records are kept of all training sessions / inductions.

The Environmental Manager will monitor these records and undertake regular follow ups.

Figure 3 presents a hand-out to be made available to all personnel / labourers on site.



Figure 3: Hand-out to be provided to all personnel/labourers

9.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment

Menar is committed to establishing and maintaining procedures to identify potential emergency situations, to respond to emergencies and to mitigate any resulting safety, health, and environmental risks. In addition, the organisation will review its emergency procedures (particularly after emergency situations) and periodically test such procedures where practicable.

Training, as detailed above, will address the specific measures and actions as listed in the EMP and also conditions of the EA. In this way, the prospecting team will be provided the knowledge required to conduct the prospecting activities without resulting in environmental non-compliance, the liability of which would lie with Menar. Secondly, informing the prospecting team of the EMP will also assist the team in identifying if an impact is likely to occur / has occurred and communicate this appropriately to the Environmental Manager.

In order for appropriate action to be taken, proper communications network and reporting protocol must be established, with the prospecting team and the site manager reporting all environmental and social issues to the Environmental.

10 Specific information required by the Competent Authority

All the information requested by the Competent Authority (DMRE) to date has been included in the BAR/EMPr.

11 UNDERTAKING

I Thomas Willem Olivier herby undertake that:

- (a) the information provided in the foregoing report is correct.
- (b) the comments and inputs from stakeholders and I&APs have been correctly recorded in the report.
- (c) the information provided to interested and affected parties and any responses to comments or inputs made by interested and affected parties are correctly reflected in the report; and
- (d) the inputs and recommendations from the specialist reports have been included in the EIA/EMPr Report.

Compiled by:

Reviewed by:



Tommy Olivier – Project Manager
Reg. EAP (EAPASA) No. 2020/1162
Date: 2021/08/19



Inus de Wit – Alternate Project Manager
Reg. EAP (EAPASA) No. 2019/417
Date: 2021/08/19

-END-

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